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DETROIT

AIR CONDITIONING & REFRIGERATION NEWS

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IN THIS ISSUE

Small Store Man Tells How To Do Big Volume
Some other types of appliance dealers might say that for a department store manager to point out that the way to sell refrigerators is to spend goodly sums for personnel and promotion, and to concentrate on sales of higher-priced merchandise, would indeed be news! But that's the formula given by the head of a small Torrington, Conn. department store when he was asked to tell how such a big part of his store's volume was in appliances. **Page 6.**

* * *

Sending a Comfort Chart Isn't Quite the Answer
"My house has a dry-bulb temperature of 78° F. and a wet-bulb temperature of 68½° F. but we are not comfortable under these conditions," wrote the owner of an air conditioning system. For a reply, the owner got a copy of the Comfort Chart and a note telling him that he certainly should have been comfortable under those conditions. Well, the point is simply that you have to adjust air conditioning to suit the customer, and Al Newton suggests an answer to the problem on **page 15.**

* * *

Who's To Supply the Pieces For Air Conditioning?
Who's going to supply parts to the air conditioning contractor? W. C. "Bill" Allen of Modern Equipment Corp. thought he knew until he undertook personal supervision of an air conditioning installation last summer. From which experience he gathered some ideas about what the refrigeration supplies jobber must do if he is to serve the air conditioning trade. **Page 16.**

* * *

Who'll the Boom Boom?
What is the armament boom going to mean to the refrigeration dealer? In just what corner will it affect him? You'll have to read the editorial page **(page 8)** of this issue for the dope from the editor's feedbox.

* * *

It's a "Business" Now & Should Be Run Like One
In the evolution of the industry first there was the refrigeration service man, then the service shop, and eventually the "service business." There are still too many service men with a service business who fail to run it as a "business." A veteran in the game tells some of the things that must be done to make a refrigeration service operation a real "business." **Page 19.**

* * *

What's New
A "continued" story giving brief descriptions of some of the new items that were recently displayed at the All-Industry Refrigeration & Air Conditioning Exhibition. **Page 14.**

L-F-C's New Board Chairman: A. E. Allen

NEW BRITAIN, Conn.—Arthur E. Allen, formerly vice president of Westinghouse Electric & Mfg. Co., has been elected chairman of the board of Landers, Frary & Clark, appliance manufacturing company. Richard L. White, treasurer, has been named president to succeed the late Arthur G. Kimball.

Mr. White will continue as treasurer in addition to his new duties as chief executive of the company. Bret C. Neece, vice president and general sales manager, has been named a director of the company.

Mr. Allen retired from Westinghouse in 1938, and since 1939 has been a director of Landers, Frary & Clark, acting in a consulting capacity as well. The position to which he was elected has been vacant since the death of C. F. Smith.

Storage Extras Stressed In '41 Hotpoint Line

Butter Conditioner, Utility Bin Added; Interiors More Spacious

CHICAGO—New features of design, construction, and convenience are presented by Hotpoint for 1941 in a line of 15 refrigerator models, ranging from 3 to 16-cu. ft. capacity. Topping the features list are two additional storage zones (one for butter and one for unrefrigerated storage), new interior design to provide greater storage capacity; white Textolite door strips, and three models of a new 7-cu. ft. capacity.

All models except the Imperial series are finished with white Calgloss; Imperial series is finished in white porcelain enamel. Stainless steel base grille on Deluxe and Imperial models is designed to give symmetry to the refrigerator's appearance.

Cabinet interiors throughout the line, excepting the 3 and 4-cu. ft. sizes, have been redesigned to increase the amount of usable storage space and enhance interior appearance. A new construction feature, offered this year in all Deluxe and Imperial models, as well as the 7-cu. ft. Standard, is the use of white Textolite door strips.

A new convenience feature is the "butter conditioner," where butter may be kept fresh, and at proper

(Concluded on Page 4, Column 4)

York Calls Meeting To Decide on Name Change

YORK, Pa.—York Ice Machinery Corp. Jan. 27 issued a call for a special meeting of its stockholders to vote on a proposal which, if adopted, will effect a recapitalization and change its name to York Corp.

The plan contemplates that York Ice Machinery Corp. will merge with its subsidiary York Corp. If the merger is approved the surviving corporation will have 962,046 shares of common stock authorized and outstanding which will be issued on the basis of 15 shares for each existing share of preferred stock and one share for each existing share of common stock of York Ice Machinery Corp. This will result in the distribution of 83.2% of the new stock to the present preferred stockholders.

The company states that among the purposes of the proposal, in addition to changing the name, are the elimination of the preferred stock with its large arrearages and the facilitation of the refinancing of its

(Concluded on Page 17, Column 4)

Refrigerator Tax Shows Increase In December

WASHINGTON, D. C.—Excise tax collections on mechanical refrigerators during the month of December, 1940, totaled $394,415.26, as compared with $222,892.52 in the same month of 1939, according to figures compiled by the Bureau of Internal Revenue, U. S. Treasury Department.

'40 Refrigerator Sales 2,720,000 Units At Average Price of $154

All Chicago Cooling Records Toppled By 1940 Sales

CHICAGO—Sales of both central-plant air conditioning systems and electric room coolers reached new all-time high levels last year in Chicago, figures released by Commonwealth Edison Co. show.

A total of 389 central-plant installations with a combined capacity of 8,609 hp. were contracted for in 1940, as against 334 systems aggre-

(Concluded on Page 17, Column 3)

Trade-Ins on 'Specials' Barred In Knoxville

KNOXVILLE, Tenn.—A provision barring trade-in allowances on deals involving "special" 6-foot refrigerators has been added to its code of operating practices by the Knoxville Major Electrical Appliance Bureau.

Formal text of the provision reads: "No trade-in allowance will be granted on low-cost special 6-cu. ft. refrigerators."

Explaining the new provision, T. W. Justice, manager of Sterchi Bros. appliance department and head of the bureau since its organization, said: "It was felt that there was not sufficient profit to dealers by

(Concluded on Page 17, Column 3)

Sales In U.S. Alone Hit 2,570,000 Mark; 35% Gain Over '39

DETROIT—As was predictable as early as May of last year, 1940 sales of household electric refrigerators by manufacturers to distributing outlets cracked all existing records, world sales totaling 2,720,000 units, according to estimates made by AIR CONDITIONING & REFRIGERATION NEWS.

The gain over the 1939 total was close to 35%.

Sales in the United States alone by manufacturers to distributing outlets were 2,570,000 refrigerators. According to available information, 19% of the sales in the United States involved the replacement of a unit previously used by the same family.

On the basis of available figures, the average price of the household electric refrigerators sold in the United States in 1940 was $154, as compared with $169 in 1939.

AIR CONDITIONING & REFRIGERATION NEWS estimates that 280,000 household electric refrigerators were retired from use last year.

In considering the NEWS' estimates of retirements, the reader must bear in mind that the figure used for total number of refrigerators in use is based upon the Nema sales tabulation. And until August of 1940, Nema used the number of **cooling units** sold to arrive at its totals, rather than the number of cabinets or compressors sold.

This method of tabulating sales was particularly necessary in the early days, when many multiple systems were being sold, with one compressor serving many cooling units.

Thus, while many cabinets are reconditioned for resale or are sold "as is," it is likely that practically all of the cooling units which were sold separately and are being replaced, are "junked."

Also, the studies of the used boxes it handles made by Associated Refrigerator Plant, Inc. of Philadelphia, which handles the traded-in boxes for Philadelphia dealers, show that better than 33% of the boxes brought

(Concluded on Page 4, Column 1)

Crosley Angles For New Dealers With Trick Telegrams

One of the recipients of Crosley's "teaser" campaign to attract major store refrigerator outlets for 1941 was Walter Niederhelman of Gas & Electric Appliance Co., Cincinnati, shown receiving last of his "props."

L. Martin Krautter, advertising and sales promotion manager, R. I. Petrie, general sales manager, and Ben T. Roe, manager of the major stores division, complete a "dress rehearsal" in preparation for the dealer drive.

Fish Rods, Flour, Sugar, Dates Are 'Props' In Drive For Big Outlets

CINCINNATI—"Telegram for you, sir!"

Thus announced, early in January, Western Union messenger boys in hundreds of offices of appliance dealers from coast to coast.

The dealer, in each case, looked up from his desk to see the messenger boy standing before him, holding in his hand a fishing rod and reel. Attached to the fishing line was a telegram addressed to him.

"A wise merchandiser like yourself," the telegram read, "isn't going to be satisfied with 'just fishing' for profits in your refrigerator department in 1941. You won't have to! P. S.—You'll be wise to 'hold everything' until you hear the story Crosley has for you!"

Next morning, at the same hour, the same boy was back in his office—and in hundreds of other offices all over the country.

"Telegram for you, sir!" he announced again.

This time, a small bag of flour accompanied the telegram, which assured the dealer that a Crosley franchise would assure him of "plenty of dough." And, on three succeeding days, three additional telegrams were delivered to each of the hundreds of dealers concerned.

With one of them went a sack of sugar and a message pointing out that the Crosley franchise is a "sugar-sweet deal." This was followed by a metal cash-box and a telegram mentioning that the franchise would put "plenty of money into your refrigerator department cash-box."

With the final telegram went a box of dates, and a message from the Crosley distributor in that locality.

"We'll want a date with you soon—

(Concluded on Page 17, Column 3)

Servel Sets Eastern Sales Conference For Feb. 7-8

NEW YORK CITY—Annual eastern sales and engineering convention of the electric refrigeration and air conditioning division of Servel, Inc. will be held Feb. 7 and 8 in Hotel Abbey. E. A. Terhune, sales manager, will be in charge of the meeting, to which distributors, dealers, sales and service men, ice cream manufacturers, and makers of allied commercial and air conditioning products have been invited.

Opening session on Feb. 7 will be keynoted by Mr. Terhune with an address on "Riding the Escalator" to bigger business in 1941. "Streamlined Quality," by C. F. Olin, western national accounts manager, will be followed by a talk by W. J. Aulsebrook, assistant sales manager, titled "Free Wheeling." J. F. Zubrod, senior applications engineer, will discuss "Applications Simplified"; Harry Bell, eastern district manager, will tell of "Profits in Allied Products," and Mr. Terhune will close the session with advice on "Beating Competition."

Afternoon session will open with a talk on "Savings Through Quality," by P. B. Reed, service manager; A. M. Schmitz, field engineer, will

(Concluded on Page 17, Column 3)

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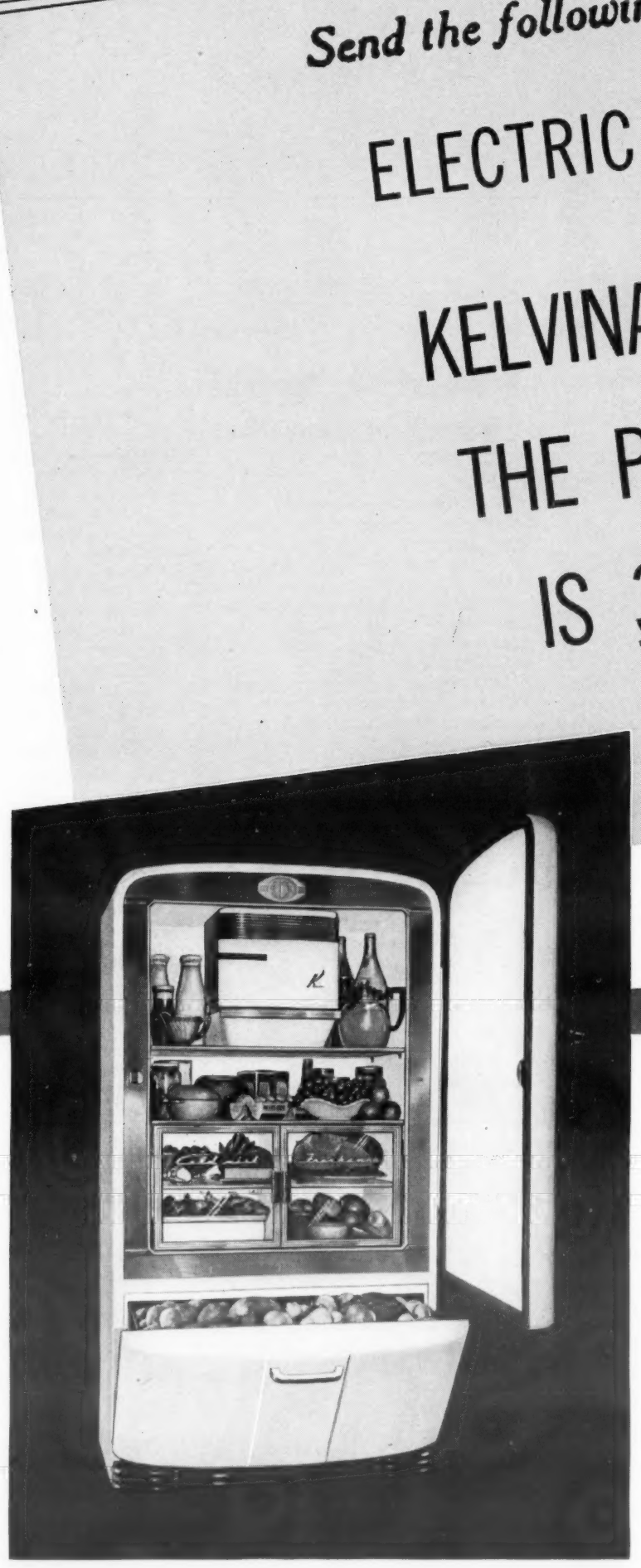
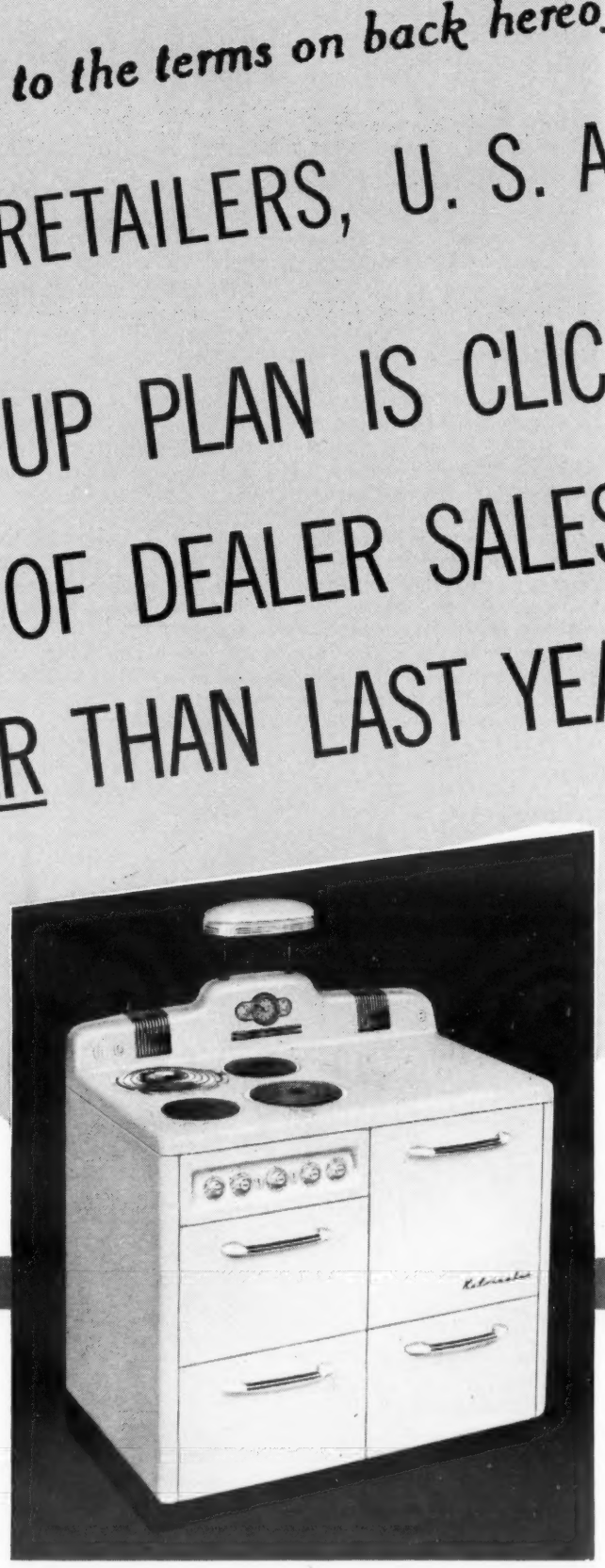
Send the following message, subject to the terms on back hereof, w

ELECTRIC APPLIANCE RETAILERS, U. S. A.

KELVINATOR'S STEP-UP PLAN IS CLICKIN VEN
THE PERCENTAGE OF DEALER SALES O OD
IS 33% GREATER THAN LAST YEAR'S ECO





A Long-Range Program of Planned Distribution and Manufacturing — Created by a "Retail-Minded" Organization

THE retail showroom is the schoolroom of the electric refrigeration industry.

Manufacturing, engineering, financing and advertising as well as sales must, to do a really sound job, take their cue from the showroom floor.

Kelvinator's long-range program of *planned* distribution and manufacturing was born out of showroom floor experience and showroom floor knowledge.

Its products are planned for *sale*.

Its prices are planned for *sale*.

Its installment terms are planned for *sale*.

So, too, was that essential and highly successful feature of the over-all program—the 1941 Kelvinator step-up plan—a step-up plan that deliberately makes it easier to sell the higher-bracket models where profits are greatest.

It has, in fact, been so enthusiastically hailed by the industry that a new phrase is being born —"step-up buying" is replacing step-up selling. The customer sells *himself* up the line.

For retail profits follow the lead of a "retail-minded" company.

NION

hereby agreed to

VEN BETTER THAN LAST YEAR'S.
ODELS RETAILING ABOVE $150
ECORD-BREAKING RESULTS.

Check These Kelvinator Franchise Advantages Against Any Other

1 EXCLUSIVE EXTRAS . . . No other refrigerator offers the exclusive new Magic Shelf—the Stainless Steel Cold-Ban—the Glass-enclosed Cold-mist Freshener cooled by coils within the walls of the refrigerator. And the 1941 Kelvinator Ranges offer new, exclusive features at the lowest prices in history.

2 STEP-UP PLAN . . . A *logical* step-up plan based on the actual retail *value* of each added feature. The *higher* priced models, in both refrigerators and ranges, are easy to sell.

3 NEW LOW PRICES . . . Last year Kelvinator's new price policy revolutionized the industry. This year, step number two in our long-range program reduces refrigerator and range prices even farther, and greater values have been built into every model in the line.

4 HIGH UNIT SALES . . . Last year the average of 80 per cent of all Kelvinator retailers' sales was $160—which we believe sets an industry record. With this year's amazing step-up plan Kelvinator retailers will again sell an overwhelmingly big per cent of higher-priced refrigerators and ranges.

5 SIZE . . . One of Kelvinator's most important *extras* is size. Six cubic foot refrigerators are now six and three-quarter cubic feet—and eights are eight and three-quarter cubic feet—thanks to Kelvinator's new cabinet construction. And all ranges have big, *oversize* ovens.

6 SELECTIVE MARKETS . . . Kelvinator's 1940 policies, carried forward into 1941, have earned for Kelvinator the reputation of putting into actual practice—"a market for every dealer—a dealer for every market".

7 FEWER MODELS . . . By concentrating on the models people really want, Kelvinator has reduced its refrigerator line to *eight* models—its range line to three—and thus reduced the retailer's investment to a minimum and simplified his selling problem.

8 SERVICE-FREE . . . The Polarsphere Sealed Unit has set a record for reliable performance. Of the hundreds of thousands of Kelvinator refrigerators sold last year, less than one-half of one per cent were returned to the factory for service.

9 REPLACEMENT SALES . . . The new and radically different 1941 Kelvinator Moist-Master with its glass shelves and Cold-mist Freshener, offers the most powerful replacement incentive in years. And every 1941 Kelvinator is a *brand new* model. Not one is a relabeled carry-over from 1940.

10 ADVERTISING AND PROMOTION . . . The biggest campaign in Kelvinator's history is already under way with four-color magazine advertising—key city newspaper and transcribed radio spot announcements—new style billboard posters and complete cooperative advertising materials. Selling and product literature is printed in *full-colors*.

11 STOCKING . . . Kelvinator's Redisco Plan for 1941 provides the most flexible and liberal method of stocking refrigerators and ranges you have ever been offered.

12 PLANNED DISTRIBUTION AND MANUFACTURING . . . A long-range program developed by a "retail-minded" organization to help retailers build an increasingly profitable business.

• • •

Kelvinator Division
NASH-KELVINATOR CORPORATION, DETROIT, MICH.

Get More — Get **KELVINATOR**

15,855,000 Electric Refrigerators Are in Use in U. S.

Cumulative record of electric refrigerator sales estimated by Air Conditioning & Refrigeration News on the basis of preliminary figures for 1940 furnished by manufacturers in the Nema group.

	World Sales	— Exports	= Sales In U.S.	— Retirements	— Distributor & Dealer Stocks	= Total In Use In U.S.
Dec. 31, 1933	5,885,000	356,000	5,529,000	800,000	75,000	4,654,000
During 1934	1,390,000	107,000	1,283,000	63,000		
Dec. 31, 1934	7,275,000	463,000	6,812,000	863,000	125,000	5,824,000
During 1935	1,688,000	120,000	1,568,000	114,000		
Dec. 31, 1935	8,963,000	583,000	8,380,000	977,000	125,000	7,278,000
During 1936	2,180,000	184,000	1,996,000	225,000		
Dec. 31, 1936	11,143,000	767,000	10,376,000	1,202,000	200,000	8,974,000
During 1937	2,500,000	190,000	2,310,000	358,000		
Dec. 31, 1937	13,643,000	957,000	12,686,000	1,560,000	300,000	10,826,000
During 1938	1,430,000	176,000	1,254,000	140,000		
Dec. 31, 1938	15,073,000	1,133,000	13,940,000	1,700,000	125,000	12,115,000
During 1939	2,085,000	185,000	1,900,000	250,000		
Dec. 31, 1939	17,158,000	1,318,000	15,840,000	1,950,000	150,000	13,740,000
During 1940	2,720,000	150,000	2,570,000	280,000		
Dec. 31, 1940	19,878,000	1,468,000	18,410,000	2,230,000	125,000	15,855,000

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(Concluded from Page 1, Column 5)
into the plant have to be junked, and this despite the fact that the plant is especially set up to do reconditioning work.

(As an example, the junking of a multiple system with 20 evaporators hooked up to it must be counted as the retirement of 20 refrigerators in any calculation designed to arrive at the number of refrigerators in use.)

Thus, it would seem reasonable to believe that in most communities, where reconditioning facilities are not highly developed, and where nearly 100% of apartment house replacements are junked, that the percentage of replacements that are retired from use will be relatively high.

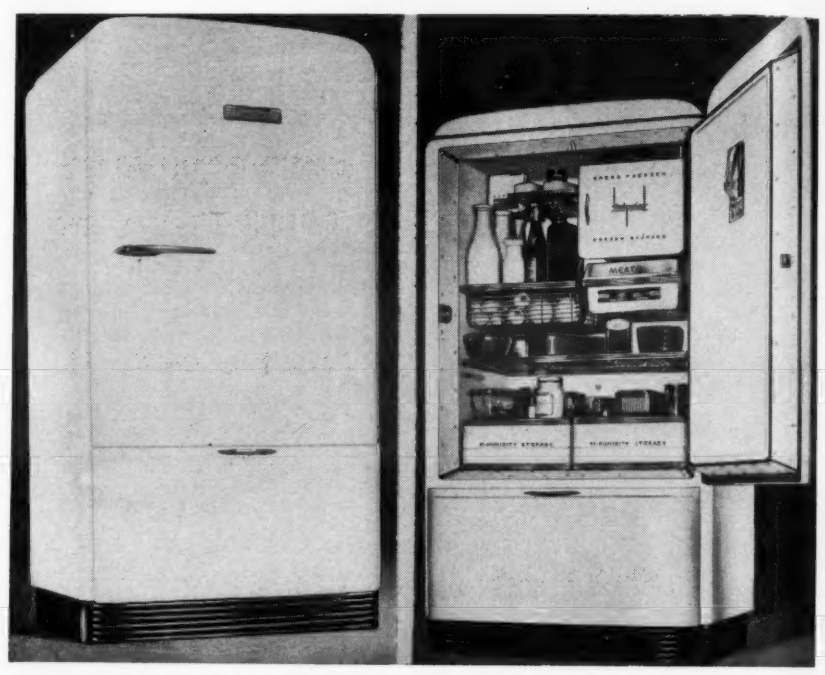
With the allowances for retirements, and stocks in the hands of distributors and dealers, it is estimated that the total number of refrigerators in use in the United States as of Jan. 1, 1941, stood at 15,855,000 units.

Household Refrigerator Sales by Years

Estimated World Sales by All U. S. Manufacturers by Years

Year	No. of Units	Average Retail Price	Retail Value
Up to 1920	10,000	$600	$ 6,000,000
1921	5,000	550	2,750,000
1922	12,000	525	6,300,000
1923	18,000	475	8,550,000
1924	30,000	450	13,500,000
1925	75,000	425	31,875,000
1926	210,000	390	81,900,000
1927	390,000	350	136,500,000
1928	560,000	334	187,040,000
1929	840,000	292	245,280,000
1930	850,000	275	233,750,000
1931	965,000	258	248,970,000
1932	840,000	195	163,800,000
1933	1,080,000	170	183,600,000
1934	1,390,000	172	239,080,000
1935	1,688,000	166	280,208,000
1936	2,180,000	164	357,520,000
1937	2,500,000	171	427,500,000
1938	1,410,000	172	282,520,000
1939	2,085,000	169	352,365,000
1940	2,720,000	154	418,880,000

The Hotpoint for '41



Exterior and interior of one of Hotpoint's Deluxe models. White Textolite door strips, a "butter conditioner," dry storage compartment, and a more flexible cabinet arrangement are standout features of the new line.

* * *

Extra Storage Space Featured In 1941 Line of Hotpoints

(Concluded from Page 1, Column 2)
consistency for spreading, by adjustment of a small knob. The butter conditioner is provided in certain Deluxe and Imperial models, as a special compartment in the upper left-hand corner of the cabinet.

All Deluxe and Imperial models have a storage drawer located just beneath the refrigerated cabinet. This drawer provides storage for packaged foods, canned goods, and other foods that do not require refrigeration. The drawer is pulled straight out from the refrigerator.

Stainless steel freezer has been made larger this year in some models, offering extra space for freezing desserts and ice cubes, and storing frozen foods. Some models also have a ½-gallon dessert tray, equipped with Pop-Ice grids. New type radial dial, of "Hotpoint blue" translucent crystallite, illuminated with edge lighting, is used on the freezers of all 1941 Hotpoint Deluxe and Imperial models, except the 6-cu. ft. size.

Storage compartment has been improved by the addition of a brace which aids in keeping the meat storage pan rigid, when holding a heavy load of meat, bottles, or other items. All models, except the 3 and 4-cu. ft. and the 6-cu. ft. Special, have "six-way" storage compartments, including a glass defrost tray and acid-resisting meat storage pan, which can be arranged in six different storage needs. The 7-cu. ft. Standard model, as well as all Deluxe and Imperial models, includes a new humidity control on the meat storage pan.

In addition to increased cold beverage zone capacity, many models have a removable top part-shelf for small packages and bottles. This shelf is adjustable in height, or may be removed completely. Special feature of 8-cu. ft. Deluxe and Imperial models is a utility basket, hung just below the cold beverage zone, for storing eggs, self-protected fruit, etc.

Stainless steel shelves in most models are gliding and adjustable in height. Storage flexibility is provided by the use of "split" shelves, one-half of which may be removed to make space for large milk cans, egg containers, large cuts of meat, etc.

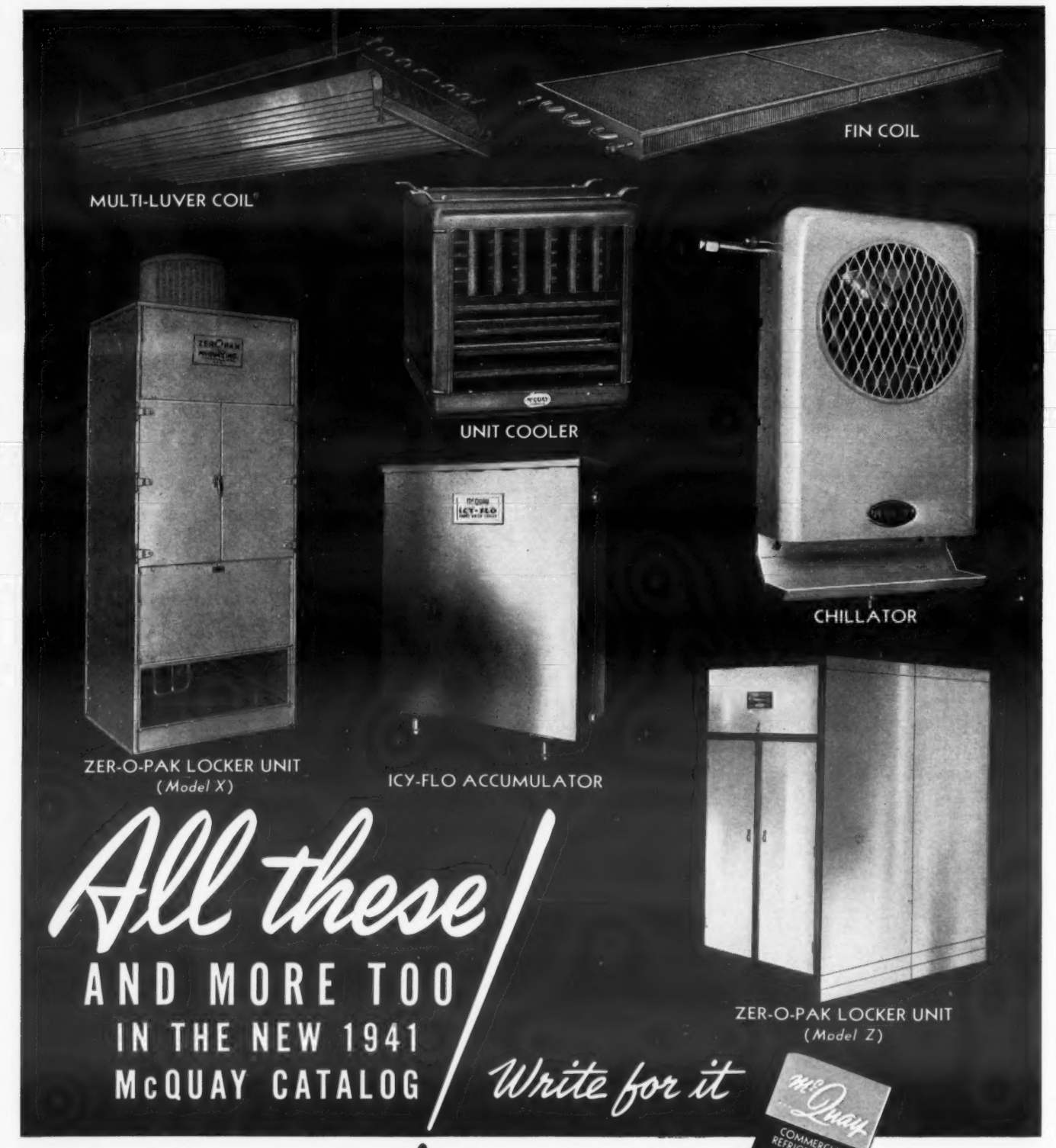
The 7-cu. ft. Standard model, and all Deluxe and Imperial models, have "Hi-Humidity" storage compartments, consisting of two glass-topped, sliding porcelain enamel pans, which may be stacked one on top of another. A one-drawer crisper compartment is provided in 6 and 8-cu. ft. Standard models.

In several Deluxe and Imperial models, an air purifier, which prevents circulation of food odors that might be present within the cabinet, is mounted between the crisper drawers.

A glass water bottle is standard equipment in nearly all models, as are Calgloss-finished freezer doors, automatic interior lights, and defrost indicators. All models are equipped with Pop-Ice trays and three-way release levers, and each includes a copy of the new "Guidebook to Greater Enjoyment of Your Hotpoint Refrigerator," in which the one-year warranty and five-year replacement contract is bound.

Complete line of Hotpoint 1941 refrigerator models includes three Specials, of 3, 4, and 6-cu. ft. capacity. Four Standard models include 3, 6, 7, and 8-cu. ft. capacities.

In the Deluxe series (Calgloss finished) are models of 6, 7, and 8-cu. ft. capacities, and the Imperial series (porcelain finished) includes 6, 7, 8, 12, and 16-cu. ft. models. Equipment in Deluxe and Imperial models is almost identical.



The 1941 McQuay line of Refrigeration Equipment has reached a new high in performance and dependability. The line has been largely expanded to meet the demand for heavy duty Commercial equipment in a score of new fields.

This larger and more complete line is unequaled due to the Exclusive McQuay Coil Construction whereby the tubes are hydraulically expanded into the wide fin collar insuring a permanent bond without the use of solder. This construction gives a larger area of contact between the fin and tube and is not only higher in Heat Transfer effectiveness but is trouble free as well. Units and coils are made in a large number of sizes and types to fit most requirements. Write for your McQuay catalogs today indicating the types of equipment in which you are most interested. McQuay, Inc., 1607 N. E. Broadway, Minneapolis, Minnesota.

McQuay INC.

Air Conditioners . . . Air Conditioning Coils . . . Blast Coils . . . Blower Coolers . . . Comfort Coolers . . . Cabinet Radiation . . . Concealed Radiation . . . Evaporative Condensers . . . Indoor Cooling Towers . . . Ice Cube Makers . . . Icy-Flo Accumulators . . . Refrigerating Coils . . . Room Coolers . . . Unit Heaters . . . Unit Coolers . . . Water Cooling Units

Distributor-Dealer Doings

G-E Supply Establishes Office In Wilmington

WILMINGTON, Del. — A local branch of General Electric Supply Corp. has been set up as a part of the Chesapeake division of the G-E supply organization, which also includes the Baltimore and Washington, D. C. branches. The new branch has been opened at 711 Orange St.

E. E. Colladay, for the past few years promotion manager for the Chesapeake division, with headquarters at Washington, D. C., has been appointed manager of the new branch. Raymond Watson of the Baltimore branch has succeeded Mr. Colladay as promotion manager for the division, with headquarters in Baltimore.

Warde B. Stringham, whose headquarters are in Washington, is manager of the Chesapeake division, while C. T. Shropshire is division manager for appliance sales.

'Tommy' Thomas Operates Denver Appliance Store

DENVER—The "A to Z" Electrical Appliance Co., 3550 E. Colfax, is now the "Tommy" Thomas Appliance Store, Mr. Thomas having taken over the firm where he was formerly a partner. Besides handling a full line of appliances, the store has made many of the large installations of air conditioning in Denver for the past few years.

Titche-Goettinger Does Over Appliance Dept.

DALLAS, Tex.—Titche-Goettinger Co. of Dallas, one of the South's leading department stores, has completely remodeled its appliance department.

Fluorescent lighting is a feature of the display of Frigidaire equipment stocked. There has been a marked increase of floor sales since the new illumination was installed.

New Officers Elected By Milwaukee League

MILWAUKEE — Orville Nichols was elected president of the Electrical League of Milwaukee at its annual meeting Jan. 13 at the Elks club here. Other officers named are Ralph J. Harkins, vice president; T. H. Desmond, treasurer; and Nels C. Christopherson, who was chosen secretary for the twentieth year.

Directors named are P. Y. Tumy, Mr. Nichols, Henry Czech, and F. A. Coffin.

Toledo Carrier Dealer Has Sideline In Planes

TOLEDO—Hugh Martin, president of Martin Engineering Co., Carrier commercial refrigeration and air conditioning distributor here, has purchased a Rearwin two-seater cabin plane, known as the "Sky-ranger."

Mr. Martin plans to sell the Rearwin line of private planes in Toledo, and says that, weather permitting, he will fly to the Carrier convention in Syracuse, N. Y. next month.

North Shore Furniture, Chicago, Is 'Burned Up'

CHICAGO—North Shore Furniture & Appliance Co., 448 W. North Ave., was severely damaged by fire Jan. 5 which destroyed practically all of the stock in the store but left the framework of the building practically intact. Rebuilding operations will be started in the near future.

Roycraft Co. Is Host To 400 Philco Men

MINNEAPOLIS — Four hundred northwest Philco dealers attended the showing of the 1941 Philco refrigerator line at a meeting here recently sponsored by Roycraft Co., distributor for Minnesota and Wisconsin.

Ochiltree Electric Co. Gets More Territory

PITTSBURGH—Ochiltree Electric Co., General Electric distributor, has this year added the northern West Virginia and southeastern Ohio areas to its former territory of western Pennsylvania and eastern Ohio.

West Virginia Appliance Co., Wheeling, W. Va., which formerly served the Ohio-West Virginia territory, has relinquished its distributorship but will continue as a retail operation on G-E equipment.

Beard's Suffers Fire Loss

PARAGOULD, Ark.—Fire caused a loss estimated at $15,000 to $20,000 to Beard's Temple of Music, local appliance dealership, recently. W. J. Beard, owner, reported that he had no insurance.

Manitowoc's 'Young Man' Dealership Enlarges

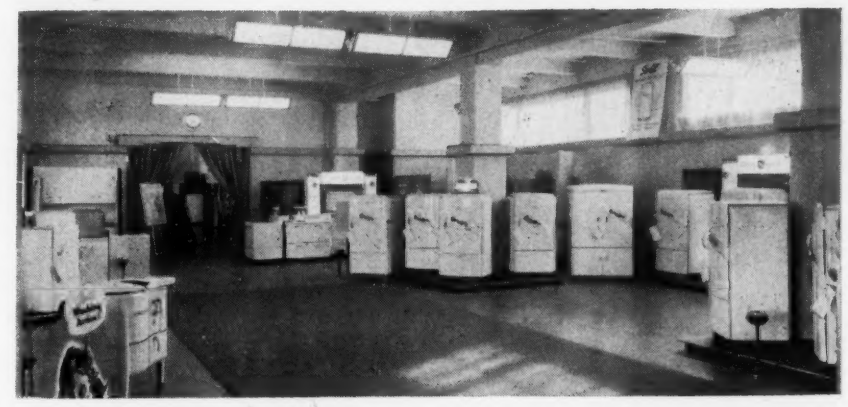
MANITOWOC, Wis. — The five-year-old Rahr Appliance Co. has moved into enlarged quarters here at Eighth and Franklin Sts. Officers of the firm are Paul F. Rahr, president and sales manager; Upton Ziesler, secretary-treasurer and general manager; and Claude Allie, vice president.

The company's three executives range in age from 28 to 32 years, while the employe who has been with the firm since its organization, Miss Janis Potratz, is only 21.

Illinois Radio, Appliance Association Moves

CHICAGO—Offices of the Illinois Radio & Appliance Dealers' Association have been moved from the twenty-ninth to the fifth floor of the Furniture Mart, occupying space 510 B. J. G. Strader is secretary.

How To Redecorate A Showroom



"The finest appliance display room in New England" is the claim being made for General Electric's Boston factory distributing branch.

Particular emphasis was placed on the lighting, with old hanging lights being replaced by 14 fluorescent lighting fixtures, said to show off the appliances to their best advantage.

New wall panels were put in and covered with pale green wall paper. Four large pillars in the display room were similarly treated. Raised display platforms, covered with red linoleum, were placed at the base of pillars and along the wall to accommodate featured appliances. Bright colored drapes were hung on all windows. A great carpet 30 by 12 feet, in taupe color, completes the decorative scheme. Separate display sections for all products are provided.

THE NEW 1941 PHILCO REFRIGERATOR IS HERE

-and PHILCO IS ON THE MARCH AGAIN!

Now, after rocketing to the front rank of refrigeration in two short years . . . after showing, last year, a record-breaking increase of over 300% in sales . . . now for 1941—

PHILCO PRESENTS A NEW CHALLENGE TO THE INDUSTRY!

Last year, Philco produced a *New Kind of Refrigerator* that contributed more new, original, saleable ideas to refrigeration than the industry had seen in 5 years!

And now . . . Philco engineers present for 1941—THE FULL FLOWERING OF THOSE NEW IDEAS . . . stepped up, improved and perfected in appearance, efficiency and construction . . . the most outstanding, the most beautiful, the most saleable line of refrigerators ever presented to the American public!

Hundreds of thousands of dollars were spent for new, modern machinery to put these 1941 Philco Refrigerators *in a class by themselves* for quality, dependability and exclusive sales appeal! It's a line of refrigerators that will *make money for you* . . . because it's the *most perfect sell-up line* ever offered in refrigeration, with powerful, logical step-ups and obvious added values in every price bracket. It's a line that's planned in advance to carry on the Philco tradition . . . to give you *the highest average unit sale,* the biggest dollar margin, the greatest profit line in the industry!

The news of this great new line of refrigerators will greet the selling season in a smashing, dominating advertising and promotional campaign. The most spectacular, sales-making Philco promotions the industry has ever seen are now in the works!

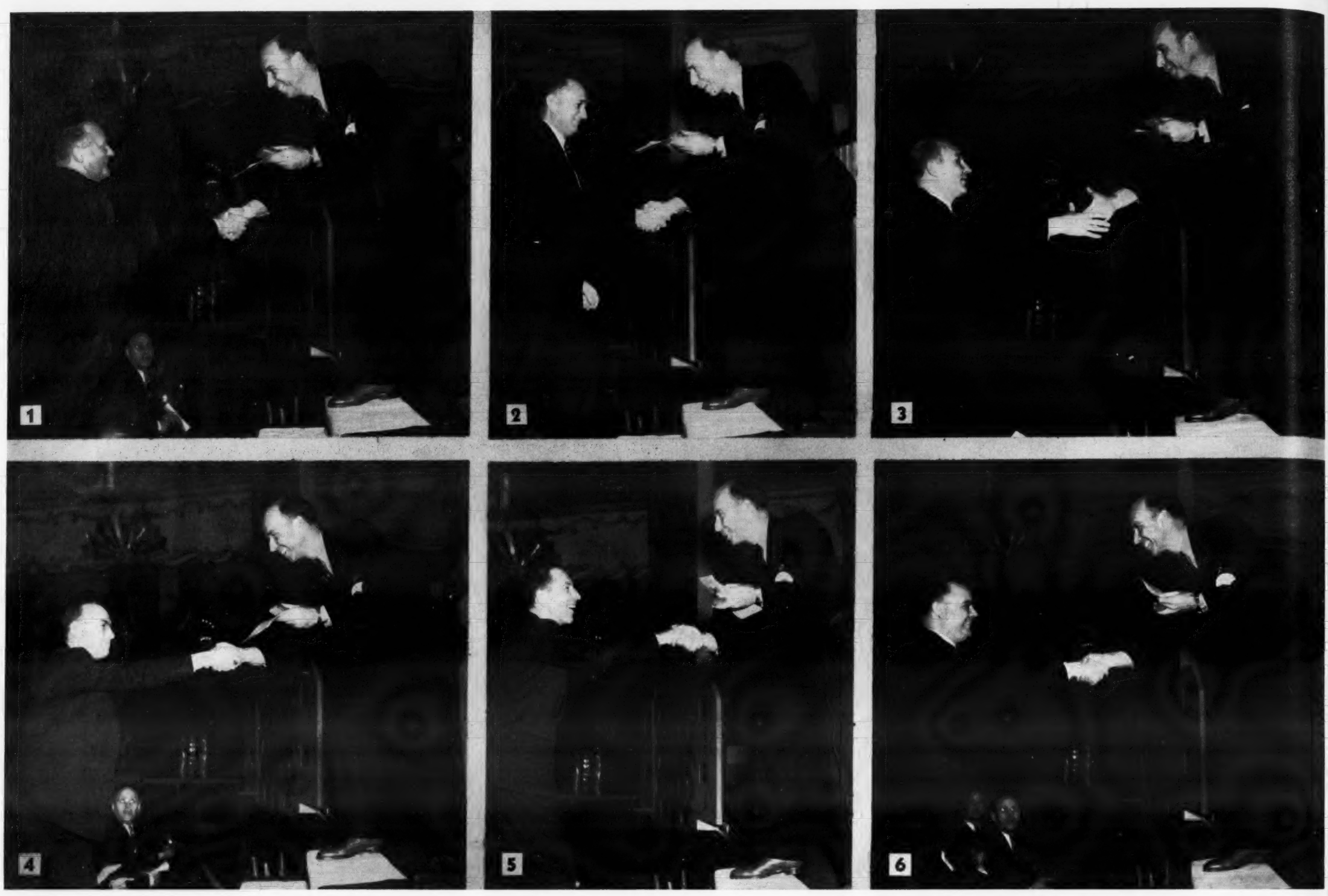
The same leadership which has just brought to Philco dealers the *greatest season of radio profits in their history* . . . now offers to you the greatest, most valuable All Year 'Round Profit Franchise in the industry. Your Philco Distributor is bringing you the complete story.

Get set to March On With Philco In 1941!

THE GREATEST REFRIGERATOR EVER BUILT... PHILCO Advanced Design MODEL MAH-7

PHILCO ALL YEAR 'ROUND . . . the Most Valuable Franchise in the Appliance Field!

Jimmy Carmine Gives Philco Winners the Old One-Two-Three



J. H. Carmine of Philco Corp. demonstrates how the well-seasoned sales executive goes about the job of distributing prizes to quota-busting distributors. Note the warm smile, the generous bow, the hearty handshake—all done with the ease, grace, and undeviating precision derived from many years of experience. Scene: Philco distributors' convention in Chicago. Prize winners: (1) Phil Gough of Listenwalter & Gough, Los Angeles; (2) J. L. Nicolay of Thompson & Holmes, Sacramento; (3) A. Hamilton of Strevell-Paterson Hardware Co., Boise, Idaho; (4) L. K. Vallandingham of Tull & Gibbs, Spokane; (5) R. G. Masters of Appliance Wholesalers of Oregon, Portland; (6) Ed T. Young, Young Bros., Erie.

Small Dept. Stores Can Make Money - - -

Even On Appliance Sales, NRDGA Speaker Says

NEW YORK CITY — Sell the higher-priced units with the larger discounts, cut down on trade-ins and finagling deals, and set a definite "top" for all costs—and the smaller department store can make money in appliances were the conclusions reached in a talk by Harry Cleaveland, president, the W. W. Mertz Co. of Torrington, Conn., in a talk before the "Smaller Stores" section of the recent convention here of the National Retail Dry Goods Association.

"We do not claim to have accomplished the ultimate in Torrington, Conn., by any means—our only real claim for 'glory' lying in the fact that for several years, we have averaged a somewhat higher percentage of appliance sales as against total store volume than is generally credited to stores of our class," stated Mr. Cleaveland.

"I am not one of those who feel—as many do—that we must necessarily 'take a beating' in this particular game—but if we were to maintain this operation as 'just another department,' I have to admit very frankly, that I could see but little hope indeed of ever making it even moderately profitable.

"In my opinion, this must be a different operation. While 'volume' will not provide the full answer to our problems, I do feel that if we hope to succeed, we must expect to build volume so as to maintain and support the necessary organization to do a balanced job.

"If I were asked to write a brief prescription or program for merchandising this department, I would say 'Proven Products' 'Properly Promoted' by 'Productive Personnel.'

"By 'Proven Products' we mean that we invariably select (at least just so far as is available) that product which in its line or classification has established itself and has come to be desired by our potential buyers.

"We try to tie our products and our promotions so close together that each automatically helps the other. We must advertise in many and devious ways, our advertising must be different—it must be impressive. If we hope to sell big items we must advertise in a big way—no 'single column by four' ever sold refrigerators in carloads.

"Now, we run right into the third phase of our program—'Productive Personnel' with the heavy emphasis on Productive and this without question for most of us at least, is the most difficult factor of all. While we believe that the real success or failure of any departmental operation is dependent to a very large degree on the 'Personnel' directly involved—here we feel that it is vital.

"We must secure as the department manager, the man who can not only 'Buy' and 'Sell' but he must be capable of building and maintaining a sales organization.

"And now when we have found this 'Manager,' and have agreed to pay the price in 'Dollars,' we must also be prepared to pay an additional price in the form of 'Personal Supervision' on the part of ourselves or our general manager or our controller or of someone to act as counselor or supervisor.

"And right here, perhaps, it would be of interest to make a comment regarding this cost in dollars. We felt from the beginning that as this department manager must be a man of ability, we must expect to pay accordingly. However, we established a definite 'top' not only for management, but for all labor and all salary costs, including delivery, installation, and service, as well as sales, and we must bear in mind that in this department the total of these costs will likely spell either success or failure for the whole operation.

"So here we are confronted with these conflicting problems — more volume—more installation and service costs, and constantly narrowing margins from which to pay them. So what!—unless we are willing to approach our 'accounting' problems as well as our merchandising problems, our promotion problems, and our personnel problems from a different angle we can hardly expect to do other than continue to 'See Red.'

"But, if we demand the utmost in discounts and producer cooperation —if we discourage the promotion of price leaders with their narrow margins and instead promote better merchandise with higher unit sales and correspondingly better discounts, and proceed with better control of every phase of the operation—reducing markdown — accepting fewer trade-ins—meaning fewer transactions and fewer handlings per net dollar of sales—then and then only may we hope for an answer that will be attractive not alone from the standpoint of 'Volume' but an answer that will produce a 'final net' of creditable proportions."

From-12 Units, ¼ to 30 Hp.
Low Pressure Units 1/4 to 15 Hp.
Type AV Ammonia Units 5½ to 50 Hp.
TRADE FRICK MARK
Refrigeration
Ammonia Compressors in 10 Sizes
From-12 Booster Compressors
Large 4-Cyl. Compressors in 5 Sizes

From ¼ hp. to 1000 tons. Whether the job calls for ammonia, methyl chloride, or "Freon-12" equipment, you can fill the need most dependably with Frick Refrigeration.

Some good territories still open for Distributors.

Get the full facts and figures now: write

DEPENDABLE REFRIGERATION SINCE 1882
FRICK CO.
WAYNESBORO, PENNA. U.S.A.

BEST 4 USE

NO OTHER REFRIGER- HAS SO -Y IN ITS FAVOR, SO A PER-4- -CE. ANSUL SO_2 NOT BURN, NOT EXP-. ITS PUN- O- SERVES AS ITS OWN -NING AGENT, MAKES -N THE SMALLEST EASY 2 DIS-. IT IS THE MOST -DEAL REFRIGER- 4 USE.

ANSUL SUL- DI- -IDE
AGENTS 4 KINETIC'S "FREON-12"
ANSUL CHEMICAL COMPANY • MARINETTE, WISCONSIN
AC-31
THERE IS AN ANSUL JOBBER NEAR YOU!

SERVEL Silver Fleet

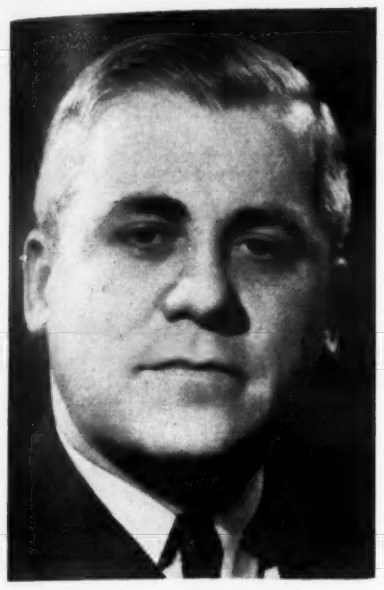
Smooth and silent as a sailboat, Servel's "Silver Fleet" refrigerating machines offer you a standard of operating efficiency that is 3 to 5 years ahead of the field. Ask for the new 72-page catalog. Servel, Inc., Electric Refrigeration and Air Conditioning Division, Evansville, Ind.

COMMERCIAL REFRIGERATING MACHINES

Norge Realigns Heating & Air Conditioning Personnel, Plans To Present New Lines

DETROIT—Realignment of executive personnel in the Norge Heating & Conditioning division, Borg-Warner Corp., has become effective this year under an order from Howard E. Blood, president, Norge division. Heading the list of appointments were those of S. J. McCarthy, sales manager, and C. S. Davis, Jr., secretary-treasurer.

Other appointments are: George Neumann, in charge of engineering; G. M. Johnston, in charge of service and sales engineering; E. R. Nichols, central divisional sales representative with headquarters at Detroit; H. W. Winningham, western divisional sales



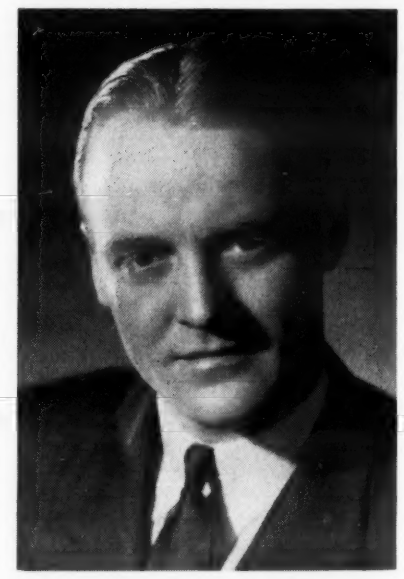
S. J. McCARTHY

representative with headquarters at Seattle, Wash.; L. J. Amish, northeastern divisional sales representative with headquarters at Rochester, N. Y.; H. C. Altenberg, mideastern divisional sales representative with headquarters at Upper Darby, Pa.

The new plan of organization is understood to be a basic step in a long-range program to expand and diversify the manufacturing and distributing activities of the company. The addition of new products to the Norge Heating & Conditioning line will be the next step and announcement of some of these is anticipated within 60 days. Conforming to universal Norge and Borg-Warner practice, new products will not be placed on the market until they have undergone tests both in engineering laboratories and under actual field service conditions.

Mr. McCarthy who came to Norge in January, 1940, first entered the heating field in 1930 with the sales department of Iron Fireman Co. He was for a period of more than ten years associated with the sales department of Westinghouse Electric & Mfg. Co., serving at one time as manager of the planning and apartment house division.

Mr. Davis has been with Norge Heating & Conditioning division since February, 1940 in the capacity of assistant sales manager. Prior to



C. S. DAVIS, JR.

that he served as secretary of the cost committee.

The Norge Heating & Conditioning division will function independently of Norge division, but will take full advantage of the engineering, manufacturing, and purchasing facilities of Norge division and Borg-Warner Corp.

N.A.C.A. Meets To Chart Its Course For 1941

(Left) E. P. Heckle, consulting engineer, Chicago, talks with Bob Kroeschell, Kroeschell Engineering Co. (Center) J. W. Bostwick, Fairbanks-Morse air conditioning manager and newly elected director of the association, speaks from the convention floor. (Right) Arnold Goeltz, Kroeschell Engineering Co., tells E. R. Cooney, association director from Buffalo, about air conditioning activities in Chicago during the past year.

Room Coolers Used To Keep Brass and Copper Plant's Laboratory Free of Zinc Oxide

BRIDGEPORT, Conn. — Westinghouse Mobilaire room coolers have been used to eliminate troublesome zinc oxide from entering the laboratory at the new Housatonic plant of the Bridgeport Brass Co. here. The proximity of the building to the casting shop, which released a certain amount of zinc oxide into the air during the casting of hot brass and copper alloys, resulted in a serious problem.

In making a chemical analysis, very delicate scales are used, and Al Baldwin, chief chemist, reported trouble with scale points. The condition was aggravated by the presence of ferric oxide from nearby smoke stacks, as well as the zinc oxide in the air.

While filters used in the portable air conditioning units soon filled up with zinc oxide and ferric oxide, they were very effective in removing these substances from the air.

Two more units were installed in the offices of the works manager and his assistant. The installations were made by West & Langdon Co. here.

Buensod-Stacey Will Cool N. Y. Fed. Reserve

NEW YORK CITY — Buensod-Stacey Air Conditioning, Inc. has been awarded the contract for year-around air conditioning of the new 14-story Federal Reserve Bank building here.

Cooling will be provided by a 1,300-hp. Carrier centrifugal refrigerating machine, powered by a Terry steam turbine.

Contracts for the building are being awarded through York & Sawyer, architects; Meyer, Strong & Jones, Inc., engineers; and Vermilya-Brown, Inc., builders.

Comfort Cooling Is Aid To Truss-Fitting Firm

ST. LOUIS — The always-uncomfortable job of fitting a truss to a nervous, ruptured patient has become considerably easier at Hamilton-Schmidt Surgical Supply Co. here since the firm installed a 15-ton air conditioning system for its basement shipping room and two truss-fitting rooms on the first floor.

In some instances, truss fitting requires as much as two hours of time, Oscar Schmidt, partner in the surgical supply firm pointed out, which during hot weather means that the patient must be exposed to tight and sometimes painful measuring devices for a long period.

Heat and perspiration are two drawbacks to doing a better job of fitting which the air conditioning system has overcome. Patients also now do not mind waiting for an hour or more until the correct size and type of truss is decided upon.

Another important fact is that trusses, while needed most in the winter, do not feel the same in the summer, according to Hamilton-Schmidt. For this reason, a truss purchased in summer will often be uncomfortable in the winter, unless special allowances are made for the seasonal problem.

Use of the air conditioning system, which pulls temperature down to 70° F. if desired, has given the patient the opportunity to test his truss under both summer and winter conditions at the same time. Sales have risen steadily since this small conditioning system was installed.

Sampsel Time Control Plant Has Glass Walls, Continuous Air Control

SPRING VALLEY, Ill.—Continuous air conditioning and completely glassed side walls are features of the new 24,000 sq. ft. building recently erected for Sampsel Time Control, Inc., at Spring Valley, Ill.

The new Sampsel building is 300 ft. long by 80 ft. wide, of modern brick-tile-glass construction.

The Sampsel organization consists of over 150 people engaged in manufacturing automatic controls for heating and air conditioning equipment. Production in the new plant is now running on three assembly lines, with two additional assembly lines under construction. The new building also houses an engineering laboratory.

Plans are now being studied for another 24,000 sq. ft. building to be used to expand manufacturing departments and additional warehouse space. This will free additional space in the original building for active assembly production.

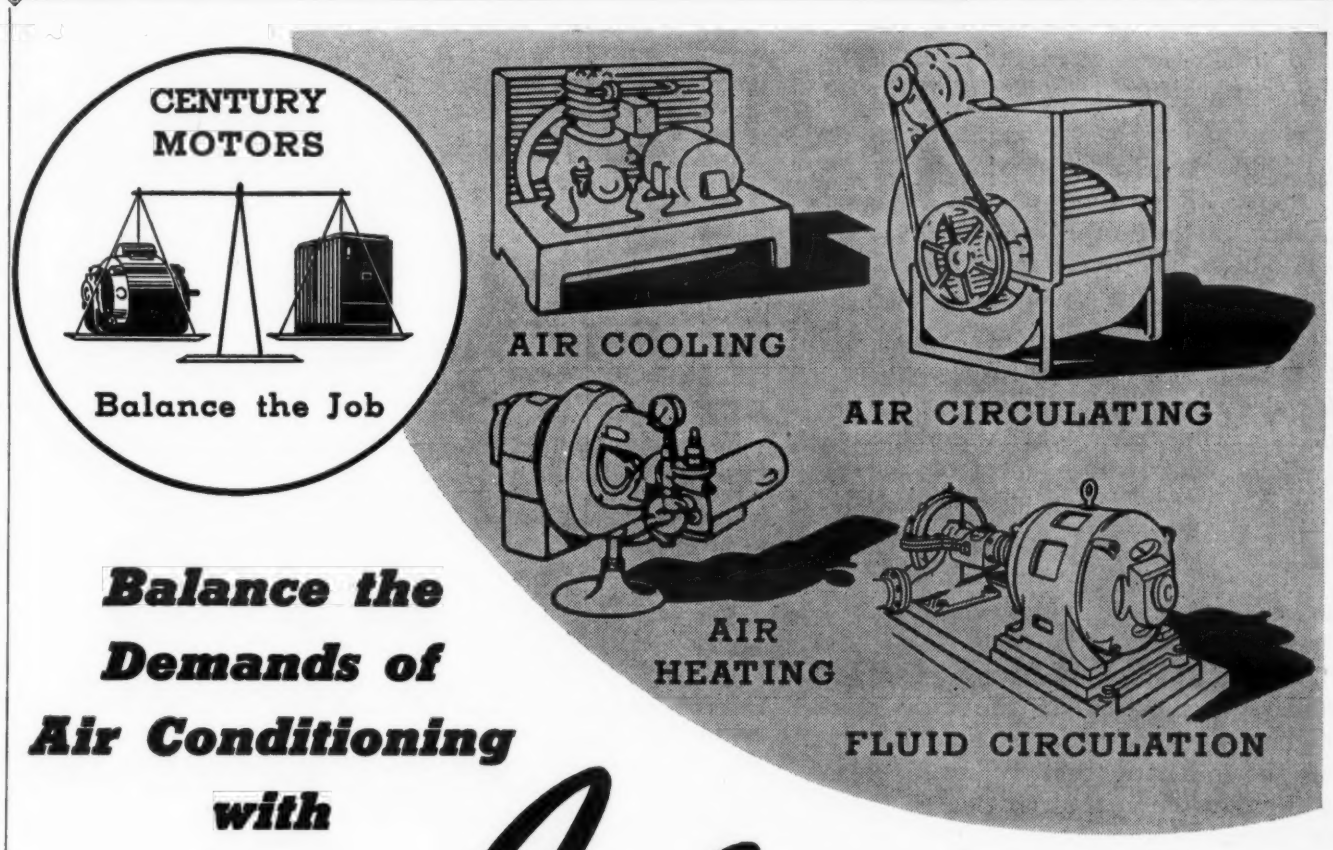
2,243 Heating Plants Sold By Boyd-Cooper Last Year

DETROIT—What is thought to be a record for an individual firm in the marketing of winter air conditioning systems has been established by the Boyd-Cooper Heating Co., here during the past year. According to Elmer Boyd, president of the organization, 2,243 individual heating plants were installed by Boyd-Cooper during 1940.

This equipment, manufactured by the Bard Mfg. Co. of Bryan, Ohio, had an average B.t.u. capacity of 140,000. Some 80% of the systems were natural gas units, the balance being oil fired.

Norge Distributor Opens

LITTLE ROCK, Ark.—Selle-Wilson Co., newly appointed distributor for Norge household appliances, was host to dealers and salesmen in this territory at a banquet recently, followed by a showing of 1941 models. Eugene Jones, Dallas district sales manager for Norge, was master of ceremonies.



Balance the Demands of Air Conditioning with CENTURY *Job Selected* MOTORS

These special data units will help you select the correct type of motor for your specialized demands:

Form 044A—Split Phase Motors for Every Split Phase Application ⅛, ⅙, ¼ horsepower.

Form 938A—Repulsion Start Induction Brush Lifting Single Phase Motors ⅛ to 40 horsepower.

Form 046A—Squirrel Cage Induction Motors ⅙ to 600 horsepower.

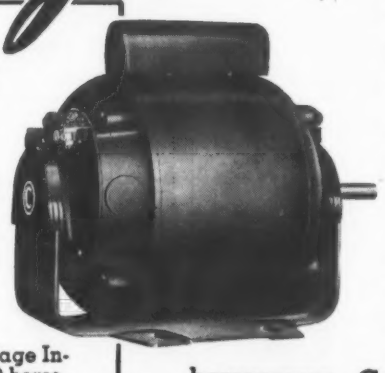
Form 6-1—Splash Proof Motors ½ to 100 horsepower.

Form 1032—Slip Ring Motors 1 to 350 horsepower.

Form 1033—Direct Current Motors 1 to 300 horsepower.

Form 0411—Capacitor Single Phase Motors ⅛ to 20 horsepower.

Form 0412—Totally enclosed Fan Cooled Squirrel Cage Motors.



In the field of air conditioning there are four widely different uses of electric motor drives. The demands of air cooling, air heating, air circulating and fluid pumping each present a specialized operating problem that only the *right* motor can best solve.

The power and operating demands of your machine or job determine which Century Motor is best for your application. Because of Century's wide range of motor types and sizes up to 600 horsepower, Century offers you the correct *Job Selected* Motor to properly balance the requirements of practically any application. You'll find Century Job Selected Motors assure you and your customers peak performance, maximum economy and satisfactory operation.

Call in your Century Motor Specialist and find out all the advantages of balancing your jobs with Century Job Selected Motors.

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1806 Pine Street St. Louis, Missouri
Offices and Stock Points in Principal Cities

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One of the Largest Exclusive Motor and Generator Manufacturers in the World

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Established 1926 and registered as
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F. M. COCKRELL, *Founder*

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Poor Man's Prosperity

ECONOMISTS now engaged in studying the armament boom into which the United States is heading agree that it will be a "poor man's prosperity."

Chief beneficiaries will be wage earners. For them champagne and caviar, instead of beer and pretzels; silk shirts and electric refrigerators, rather than blue denim and ice.

These are the people who will comprise the bulk of the prospects for electrical appliances during 1941—people who have long wanted such gadgets, but whose incomes during the last decade have just kept them above the bare line of subsistence.

Hence it may prove wise to resist price advances as long as possible, at least in the "strip-tease" models. They can swing a deal for eight-to-ten dollars a month. If the ante goes higher, they may pass it by for some of the other attractive lures which will undoubtedly be dangled in front of them.

As for dealers, some of these economists believe that small business men will also share generously in this "poor man's prosperity." One thing that has hurt them most in the last few years does not seem likely to occur in 1941 or 1942: dumping because of overproduction. Nor do informed persons look for any rash of price-cutting.

This boom will undoubtedly be "spotty," especially at first; but it does seem to hold intriguing possibilities for the dealer in electrical appliances.

Look South For Business Immediately

AWAY down yonder in the land of cotton . . . folks had a right good business year in 1940, and it looks as though they're pretty sure to have a lot better one in '41. Another way of saying this is, the South is an All-American market opportunity for the coming year, unless every indicator is completely haywire.

Mammoth army training camps are bringing in thousands of men with money to spend; these camps and these men will mean millions of dollars to the South. At more than a dozen military establishments in that section a lot of dough is getting warmed up for circulation.

Shipyards which have been closed are reopening, and those which have been open are now going great guns. At Newport News, for example, the shipbuilding company's weekly payroll has been doubled in the past couple of years, is now $400,000, and will likely double again in another year or two.

Going inland, Atlanta and Birmingham have been enjoying as consistent a business improvement as any section of the country for many, many months. To the far South, Miami's 1940 census showed the biggest percentage increase over 1930 of any city its size or bigger in the entire country.

The Southern states as a group had a 12% population increase for the past decade, compared with the national average of 7%. Southern paper mills are learning how to produce newsprint from their pine forests, and already have taken a measurable share of the national market for kraft paper. Cotton textile mills are enjoying the benefit of huge Army orders.

Many smart merchandisers have begun to look to the South for new business to come and for a nice share of their potential increases in present sales. The South is by no means rich, but as a newly thriving market, it is on the way.

Guest Editorial

By Dr. A. W. Hull, Assistant Director Research Laboratory, General Electric Co.

IF the story of science for 1940 could all be told, it would be a grim tale; for science has been at war. Its part in the war is so important that some have charged science with being responsible for the war. This is a confusion of means with action; it is like blaming the ladder for the burglary. True, Germany gained enormous advantage by being first to use the fruits of science for war; but it is just such application of science for peaceful purposes that spells industrial prosperity. Germany's use of science was natural, and would have been proper if her objectives had been proper. Remember this, and blame the war on perverted ideals, not science.

How completely the science of the world has been diverted to war will appear from a brief rollcall: Germany, Italy, Japan, England—100% commandeered; Poland, France, Belgium, Holland—universities closed. There remain Switzerland and Sweden, in addition to our own country; and I don't need to remind you how rapidly our own resources are being devoted to defense preparation.

Yet science has made progress during 1940. Most spectacular is the new 5,000-ton cyclotron being erected in Berkeley, Calif., on a hill near the university. It is not the mere size that is impressive. Its 56-foot width and 30-foot height, which make it unshippable by railroad, and its steel pole faces 15 feet in diameter—these are small compared to buildings and dams to which we have become accustomed. Nor is its cost, a mere million and a half, comparable with other modern projects. The novelty is that so much money and metal should be devoted to a scientific project, with enormous possibilities for increasing knowledge, and with it the ability to use Nature's rich and boundless resources.

How the cyclotron works is a highly technical question; but what it does is simple. It produces high speed projectiles that disrupt atoms against which they strike. The result is new kinds of atoms. A score of cyclotrons in as many laboratories have been at work steadily on this problem during 1940, increasing the list of new elements, which now exceeds in number the known varieties of Nature's original 92. The new cyclotron, with its 100 million volt projectiles, will doubtless produce more new elements and, one hopes, some unforeseen, epoch-making discovery.

All of the new elements which have been produced thus far are unstable. After a short life they explode, as radium atoms do, and the final fragments, in every case, are identical with known elements. This suggests that Nature originally may have made many more elements, and that only the 92 with their isotopes have survived.

In fact, we know that Nature is producing new elements now, slowly but persistently. For cosmic rays, about which our knowledge has increased during 1940, consist of just such high speed projectiles as the cyclotron produces, and hence capable of forming the same new elements. The cosmic rays also contain projectiles of much higher speed —thousands of times higher—and hence capable of producing other effects still unknown to us. This should make us humble; the new Berkeley cyclotron cannot compare, even to a thousandth part, with what Nature is doing every day by its cosmic rays.

The fact that the new elements are unstable may be a cause for regret. But it also is a useful quality. In the first place, there is the hope that these materials may be eaten or injected and so concentrated in tissues where their radioactivity will be curative. Experiments in this direction are proceeding cautiously, since radium taken internally acts as a slow poison. It is believed that the new substances, because of their shorter life, will not be poisonous; but this must be proved.

A second and more important use of these new unstable elements is as research tools, in chemistry, biology, and metallurgy. Exploding atoms can be detected, like radium, by electrical instruments. Hence, when one of these substances is fed to a dog or a human being, its progress through the digestive system into the blood stream and thence into the various organs or bones can be followed. The quantities needed are so small that they are believed to be harmless. Thus, our knowledge of biological processes is being enormously increased.

Closely competing with the cyclotron in popular interest has been the remarkable case of uranium, of atomic weight 235, or U-235, as it is called. Early last year it was discovered that the impact of a slow neutron on a uranium atom breaks it into two nearly equal fragments, and produces in addition a large amount of free energy. Some of this energy is in the form of high-speed neutrons, which, if slowed down, might cause the disintegration of other uranium atoms, making the process a spontaneous and self-propagating source of atomic power. The amount of power involved is dazzling—one pound of uranium is the equivalent of 1,250 tons of coal.

Last year it was not known whether this property belonged to all or only one of the three "isotopes," as they are called, of which ordinary uranium is a mixture. These isotopes, though identical chemically, have different atomic weights, 234, 235, and 238 respectively. More than 99% of ordinary uranium is of the heavy 238 variety.

During this year, partly as a result of the separation of the isotopes in the General Electric Laboratory, it has been found that the power-producing element is the 235 isotope, and that the disintegration process is really such as to give power and the possibility of self-propagation. If only a pound of this could be obtained, the dream of atomic power might come true. But U-235 constitutes only 1/140 part of ordinary uranium. Can it be separated? The very name "isotope," which means identity of chemical properties, says that it cannot be separated by ordinary chemical means. It can be separated electrically, one atom at a time, as was done in the case of the preliminary samples; but this method is far too slow and costly. Several laboratories are working on the problem, and they may solve it. But until they do, atomic power must remain a dream.

Among technological advances, two new General Electric products may be mentioned. The first is a million-volt X-ray tube for testing metal castings, capable of making a photograph through 4 inches of steel in two minutes. The tube is entirely enclosed, with its transformer, in a metal can only 3 feet in diameter and 4 feet long, filled with "Freon" gas instead of oil for insulation.

Second, a great advance has been made in electrical insulation. A new wire covering has been developed. It is one of the toughest, and is known as Formex. Another now used, the most refractory yet discovered, is of spun glass. Their use will improve the reliability of electrical apparatus.

Radio transmission by frequency modulation, or FM as it is called, has come this year and taken the country by storm; with the full blessing of the Federal Communications Commission, and assignment of enough channels to cover the country. Already more than a dozen FM stations are on the air, including the General Electric station W2XOY, whose service was inaugurated last month. FM offers the possibility of more perfect program reproduction than has been possible with our conventional networks; and the country awaits anxiously the advent of programs of this high fidelity.

Television has not fared so well. The Commission, stating that the art is not yet perfect enough for standardization, has deferred granting commercial licenses until more research shall have been done. Considering that research in all lines is yielding priority to preparedness, the immediate future of television is uncertain; its ultimate success, however, is sure.

The progress that I have described has gone on in spite of war. There will be other assets because of war. For knowledge cannot be destroyed. And just as the fruits of peaceful research may be perverted to wartime uses, so the knowledge gained in war and in preparedness for war will eventually be available for peaceful uses.

They'll Do It Every Time . . . . . By Jimmie Hatlo

A MAN WHO NEEDS NO INTRODUCTION..... I RECALL THE FIRST TIME I MET HIM. I HAD JUST BEEN AWARDED A MEDAL FOR BRAVERY UNDER FIRE..... THE NEXT TIME I MET HIM THE GOVERNOR HAD JUST PUT ME IN CHARGE OF INSECT CONTROL.... LATER ON I AGAIN MET HIM WHEN I WAS HEAD OF THE STATIC RELIEF COMMISSION..... ETC., ETC.
FOR ABOUT AN HOUR
WHO'S SUPPOSED TO BE MAKING A SPEECH? THE GENERAL OR THAT DONKEY?
GOOD THING THE GENERAL HASN'T GOT HIS GUN, HE'D PROBABLY USE IT.
AND I PAID TWO BUCKS A PLATE FOR THIS.
WHEN HE GETS DONE TALKING ABOUT HIMSELF, THE GENERAL WILL JUST HAVE TIME TO SAY "HELLO-GOODBYE."
JIMMY HATLO
1-33
Copr. 1941, King Features Syndicate, Inc., World rights reserved
INTRODUCING THE SPEAKER OF THE DAY. THEY'LL DO IT EVERY TIME
THANX TO C.E. SMITH, MILWAUKIE, OREGON

Leadership in Action

SCORES AGAIN IN '41

1941 FRIGIDAIRE PRODUCTS ARE GREATEST EVER!

Model for model there have never been such values—Values backed and proven by over 6 million Frigidaires built and sold!

—No other manufacturer can match this record!

1941 FRIGIDAIRE ADVERTISING IS GREATEST EVER!

Year after year, dollar for dollar, Frigidaire has been the most highly advertised line in the industry!

—No other manufacturer can match this record!

1941 FRIGIDAIRE DEALER ORGANIZATION IS GREATEST EVER!

The same men who in 1940 sold...
✔ more than 625,000 household refrigerators!
✔ more than 35% of the *total* industry sales increase over 1939!*
✔ more than 30% as many electric refrigerators as *all others* combined!*
are ready to make 1941 an even greater year than 1940!

—No other dealer organization can match this all-time record!

Let's Look at the New Frigidaires —Inside and Out!

*Based on United States Sales figures released by National Electric Manufacturers Association.

More than 100,000 Cold-Walls were sold in 1940! Watch this figure soar in 1941!

All Cold-Wall models have this new streamlined exterior →

COLD-WALL VALUES UP—PRICES DOWN AS MUCH AS $53!

Four out of five Dealer sales of 1940 Frigidaires averaged more than $162.00! And now, with prices of big Cold-Wall 6's starting at only $167.75*—with brilliant new exteriors and feature-packed interiors—we think you'll agree that Cold-Wall sales will easily double in 1941.

This beautiful Model CD-6, above, gives new meaning to the word "De Luxe"! New full-width Super-Freezer Chest includes extra-large section for frozen foods and making ice and desserts. Scientifically designed Meat Tender compartment. Door becomes convenient drop-leaf shelf. Only **$204.75***

Model C-6, above, sells at the lowest price ever for a Frigidaire Cold-Wall. Features include larger frozen storage space, new Meat Tender, Super-Moist Hydrator—6.8 cu. ft. Only **$167.75***

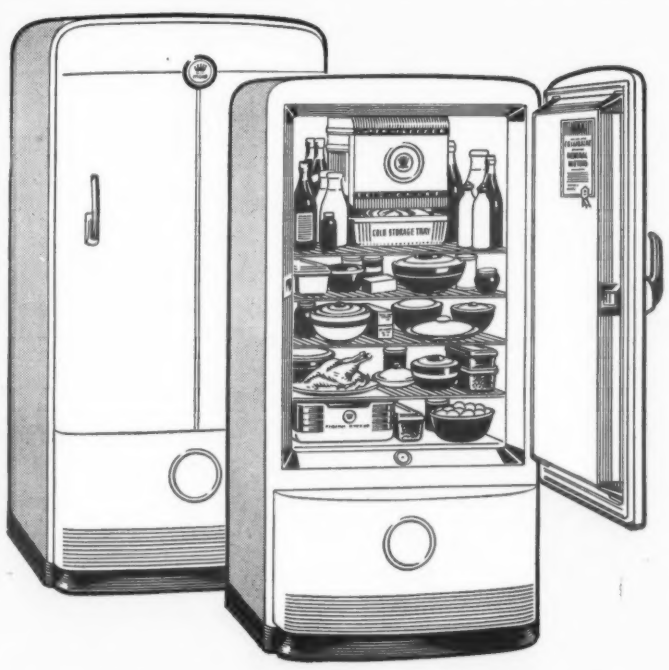
Brilliantly New Inside and Out!

Just Imagine!

3 FULLY-FITTED FRIGIDAIRES—ALL UNDER $150

Every one with *Sliding Hydrators, Quickube Trays* and other outstanding Frigidaire Features

FULLY-FITTED M-6—Biggest "Six" in Frigidaire history! Actually has 6.9 cu. ft. capacity and 14.2 sq. ft. of shelf space. Fully-fitted including new-style Utility Compartment, Sliding Glass-Topped Hydrator and with entirely new Fluted Front Design. A great new value at **$142.75***



FULLY-FITTED L-6—Another giant "Six," fully-fitted sensation. Brilliant new exterior, 6.9 cu. ft. capacity, with Glass-Topped Sliding Hydrator, all Double-Easy Quickube Trays with built-in tray release, one Double-Width Dessert Tray. Sells for only **$127.75***

FULLY-FITTED S-6—A bargain price for a fully-fitted Frigidaire, packed with features including Super-powered Meter-Miser, Quickube Trays, Frozen Storage Space, Sliding Hydrator. It costs only **$117.75***

*All prices quoted are Dayton delivered prices, and include installation, Federal Taxes and 5-Year Protection Plan. Transportation, state and local taxes (if any) extra. All prices subject to change without notice.

For '41
FRIGIDAIRE DEALERS
Offer America the Hottest Step-Up Line in History!

Brilliant new beauty!

A world-famous designer creates for Frigidaire completely new concepts of a refrigerator as a beauty note in the kitchen!

Uses less current!

The bigger, roomier 1941 Frigidaire "Sixes" have 22% more power to keep food better and freeze ice faster! Yet they *cost less to operate* than any previous comparable models.

More useful than ever!

New food compartments—bigger and roomier! New *Frozen Storage Compartments* up to 74% bigger! Shelves adjustable! Even the six cu. ft. model selling for only $117.75* is *fully-fitted,* including Hydrator moist storage and Quickube ice service!

Sensational new values!

More than a dozen brilliant models to choose from—every one a bargain-priced value. Cold-Wall prices are down as much as $53. Lowest price ever for a standard Frigidaire "Six" with Quickube Trays—only **$112.75***

On the way to *Even Greater Leadership!*

Yes, Leadership in Action scores again! Brilliant New Products —a style for every person at a price for every purse—Striking new step-ups in styling as well as in features—Aggressive new advertising and selling helps—all combine to create an irresistible selling force that will send Frigidaire Dealers speeding on their way to even greater Leadership in 1941.

FRIGIDAIRE R-6—Lowest price ever for a Frigidaire "Six" with Quickube Trays. It's a grand starting point for the greatest stepping up in Frigidaire history. Has 21 quality features, including famous Meter-Miser—One Piece Double-Width Super-Freezer—Low Operating Cost—Fast Ice Freezing. . . . . Only **$112.75***

Watch the favorite in '41

Watch Frigidaire

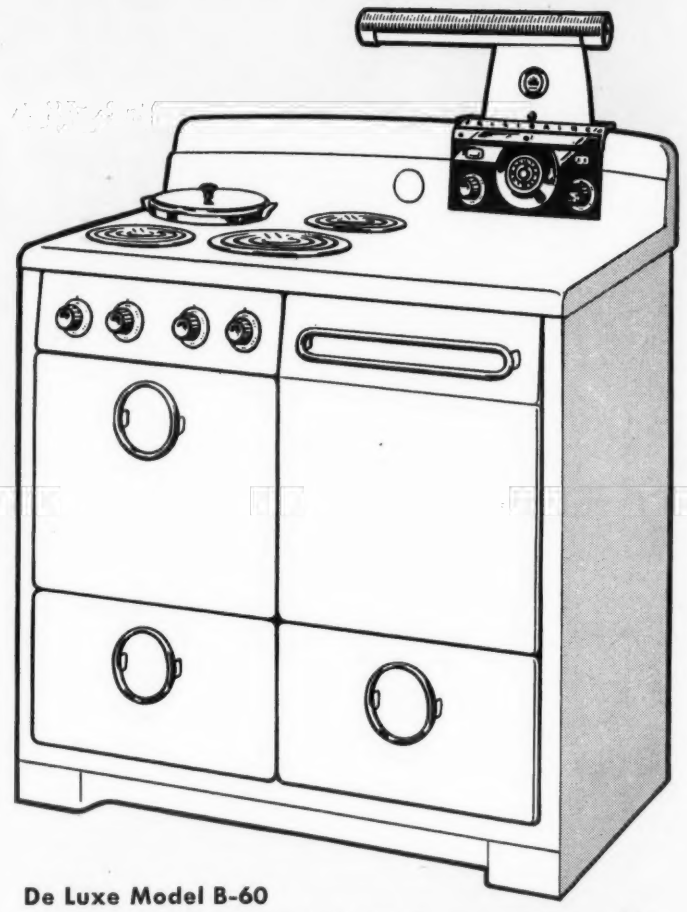
. . . over 6 million built and sold

...and Here are the New 1941

FRIGIDAIRE Electric RANGES

Two Beautiful Series...8 Models

Brilliantly New — Inside and Out!



De Luxe Model B-60

A De Luxe Model in Every Detail!

Has Fluorescent lighting, "Cook-Master," signal lights, automatic oven light, time signal, warming drawer. Thermizer deep-well cooker, Thrifto-Matic switch, Simpli-Matic oven control, plus the dozens of other Frigidaire standard features. Priced at only **$199.75***

New Beauty!

New concepts of range beauty, created by a world-famous designer. Include ultra-modern fluorescent lighting in De Luxe Models!

More Useful—Faster!

Exclusive advantages assure cooler, cleaner, more carefree cooking. New Radiantube cooking units are 18% faster than previous models.

Use Less Current!

Lowest cooking cost in Frigidaire history. New Radiantube units 15% more efficient. Exclusive oven improvements give additional savings on current.

Sensational New Values!

Many brilliant models to choose from. Every one an outstanding bargain value!

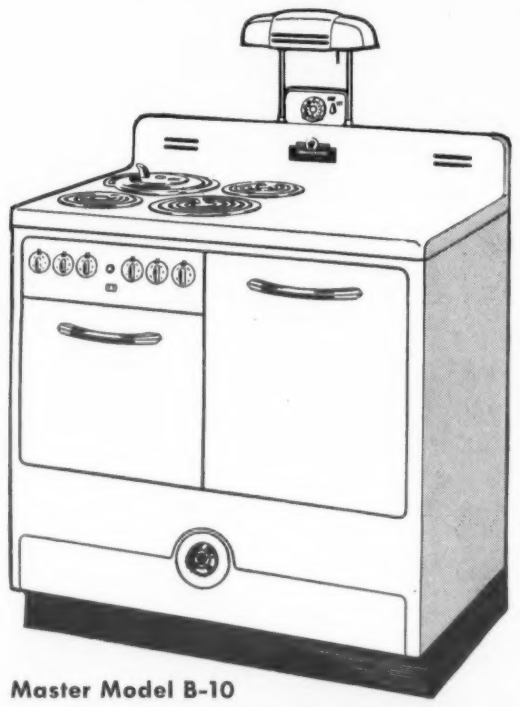
Exclusive New Radiantube Units

Frigidaire's own—an exclusive feature! 18% faster! 15% more efficient! All have 5 practical cooking heats, one for every cooking need and every type and size of utensil.

THE HERITAGE OF LEADERSHIP

America has come to expect Leadership in Frigidaire and General Motors, and rightly so. Leadership in beauty, leadership in engineering, leadership in performance, in quality, workmanship and materials, economy and full dollar value.

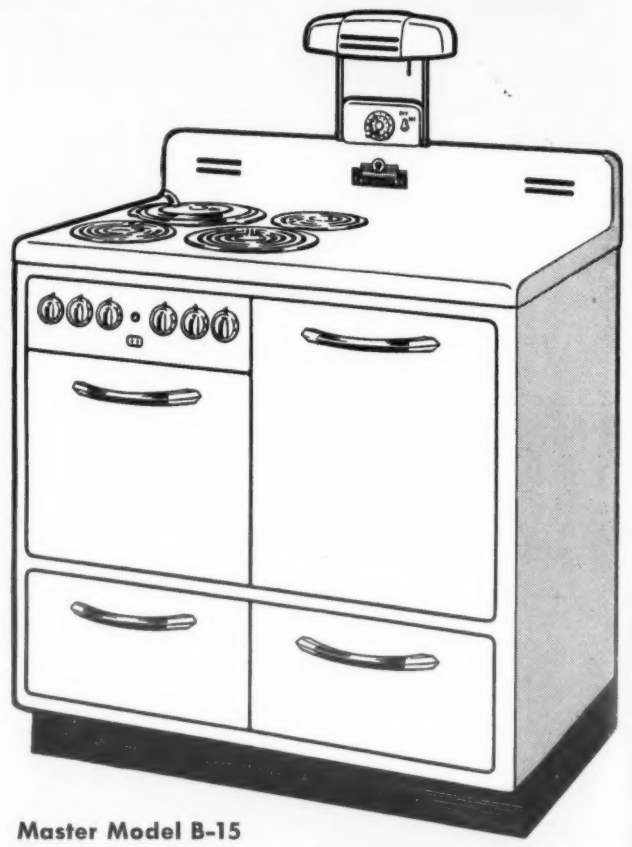
That is the heritage that has come to Frigidaire Electric Ranges. And that is the heritage these ranges live up to. In just a few years they have proved this fact by becoming one of America's fastest-selling ranges.



Master Model B-10

A Sensational Value!

A full-size one-piece all porcelain cabinet with one-piece stainless porcelain top, Thermizer cooker, twin unit oven, automatic oven heat control, high-speed broiler, utensil storage drawer and all of Frigidaire's basic quality features. Only . . **$104.75***



Master Model B-15

De Luxe Features at a Low Price!

Has Thermizer cooker with baking rack, big twin unit oven, automatic oven heat control, cooking top lamp, 3 utensil storage drawers, high-speed broiler, one-piece porcelain cabinet, one-piece stainless porcelain top, convenient electric outlet and other quality features. Priced at only **$129.75***

*IMPORTANT! All prices quoted are Dayton, Ohio, delivered prices. Transportation, Special Wiring, State, Federal and local taxes (if any) extra. All Prices Subject to Change Without Notice. (Lamp and "Cook-Master" shown on B-10 and "Cook-Master" on B-15 optional at small extra cost.)

More Reasons why Frigidaire Dealers

...will set New Selling Records!

Railroad Turns To Unit Coolers For Two-Block-Long Fruit Terminal

53 McQuay unit coolers are employed to cool all kinds of fruits and vegetables in a Minneapolis railroad terminal. Blowers are so arranged as to provide for secondary air circulation also.

* * *

MINNEAPOLIS — Fifty-three McQuay unit coolers connected to 21 York "Freon" compressors provide uniform temperature, correct relative humidity, and proper circulation of air in the several refrigerated rooms contained in the two-block-long fruit terminal of the Chicago, Rock Island, and Pacific Railroad here.

The new terminal has facilities for handling fruits (even bananas), berries, celery, lettuce, and all perishable vegetables. A special department is provided for the storage of quick frozen foods.

R. C. Hale was the consulting engineer on this job, which is one of the largest installations of its kind in this territory. Mr. Hale has directed the designing and installing of all banana room equipment for Fruit Dispatch Co.

Engineers of the railroad cooperated with Jack Raether, manager of the northwest branch of Westerlin & Campbell, St. Paul firm which served as contracting engineer on the job, in working out the terminal's ingenious control system. This system in some cases provides for secondary air circulation during periods when compressors have been automatically stopped by the temperature controls.

Special care was given to securing uniform air circulation at low velocities.

Nema November Commercial Refrigerator Sales Held Up Well

The following report of commercial refrigerating equipment sales for November, 1940 was made to the Commercial Refrigeration Section of the National Electrical Manufacturers Association (Nema) by the following 15 companies: Baker Ice Machine Co., Inc., Brunner Mfg. Co., Carrier Corp., Crosley Corp., Frigidaire Div. General Motors Corp., General Electric Co., Gibson Electric Refrigerator Co., Kelvinator Div. Nash-Kelvinator Corp., Merchant & Evans Co., Norge Div. Borg-Warner Corp., Servel, Inc., Universal Cooler Corp., Vilter Mfg. Co., Westinghouse Electric & Mfg. Co., and York Ice Machinery Corp.

SALES FOR NOVEMBER, 1940	Quantity	Value Domestic	Quantity	Value Canadian	Quantity	Value Other Foreign	Quantity	Value Total World
1. Bottle Water Coolers—Complete	291	$ 21,634	9	$ 684	12	$ 912	312	$ 23,230
2. Pressure Water Coolers—Complete	991	100,754	8	837	74	7,874	1,073	109,465
3. Water Coolers—Low Side Only	53	2,854	2	83	....	....	55	2,937
4. Ice Cream Cabinets—Complete	1,809	241,769	76	14,583	36	4,406	1,921	260,758
5. Ice Cream Holding Cabinets Only (Remote)	99	13,137	1	127	....	....	100	13,264
6. Bottle Beverage Coolers—Complete	2,291	197,088	61	5,389	54	9,421	2,406	211,898
7. Beverage Coolers (No High Sides)	29	2,685	....	....	....	....	29	2,685
8. Milk Coolers—Complete	1	104	....	....	....	....	1	104
9. Milk Cooling Cabinets (No High Sides)	14	677	....	....	....	....	14	677
10. Commercial Evaporators—Not Reported Above (Including Cold Diffusers, Brine, and Other Spray Evaporators, Etc.)	1,536	78,334	353	9,292	150	16,022	2,039	103,648
11. Condensing Units Less Than ⅓ Hp.	1,985	94,695	63	2,771	241	11,477	2,289	108,943
12. Condensing Units—⅓ Hp.	1,787	107,952	60	3,891	254	13,620	2,101	125,463
13. Condensing Units—½ Hp.	1,021	86,937	58	4,969	31*	2,692*	1,110	94,598
14. Condensing Units—¾ Hp.	608	69,437	31	3,460	41	4,524	680	77,421
15. Condensing Units—1 Hp.	363*	50,913	10	1,351	41	6,083	414	58,347
16. Condensing Units—1½ Hp.	163	30,099	9	1,543	24	4,209	196	35,851
17. Condensing Units—2 Hp.	108	24,147	9	2,067	34	6,336	151	32,550
18. Condensing Units—3 Hp.	74*	20,146	....	....	16	3,377	90	23,523
19. Condensing Units—5 Hp.	36	14,101	3	1,160	2*	1,798*	41	17,059
20. Condensing Units—7½ Hp.	18	12,141	....	....	2	1,151	20	13,292
21. Condensing Units—10 Hp.	2	1,356	....	....	....	....	2	1,356
22. Condensing Units—15 Hp.	2	2,434	....	....	1	1,123	3	3,557
23. Condensing Units—20 Hp.	....	....	....	....	....	....	....	....
24. Condensing Units—25 Hp.	....	....	....	....	....	....	....	....
25. Condensing Units—30 Hp.	3	7,500	....	....	....	....	3	7,500
26. Condensing Units—40 Hp.	4	10,400	....	....	1	2,292	5	12,692
27. Condensing Units—50 Hp.	8	22,430	....	....	3	5,703	11	28,133
28. Total—All Condensing Units (11 to 27)	6,182	554,688	243	21,212	691	64,385	7,116	640,285
29a. Condensers—Sold Separately Shell & Coil or Shell & Tube	1	393	....	....	....	....	1	393
29b. Evaporative Type	1	100	....	....	1	388	2	488
30. Total—All Commercial Refrigeration	....	$1,214,217	....	$52,207	....	$103,408	....	$1,369,832

*Includes sales and credits.

Frigidaire Uses 'Meter-Miser' Sealed Unit In Several Ice Cream Cabinet Models

DAYTON, Ohio—An innovation in the ice cream cabinet field is claimed by Frigidaire with the announcement that its 16-model 1941 line will include seven utility models using a sealed rotary type compressor.

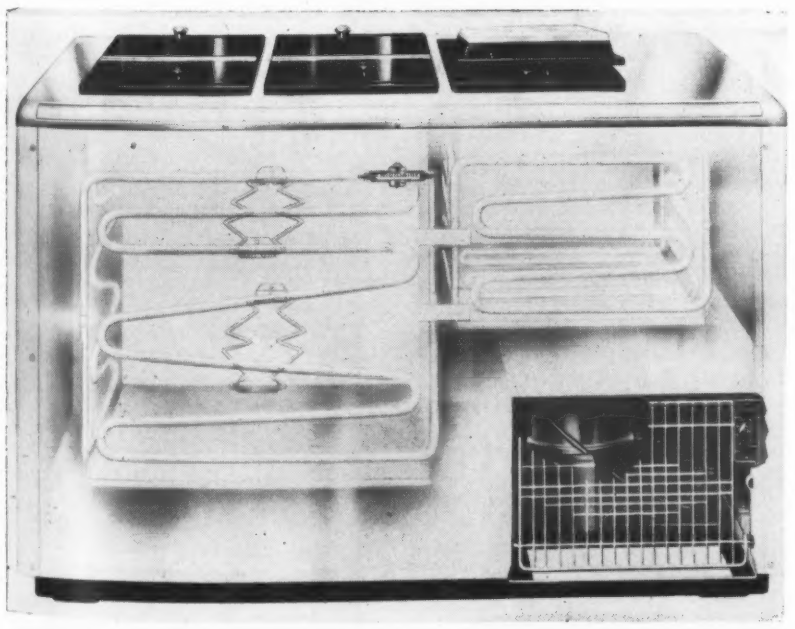
Adapted to commercial refrigeration usage through design specifically intended for low temperature duty, this rotary unit is known as the "Meter-Miser" and is of a type identical with that which has been used in more than 2,000,000 of the company's household refrigerators.

The seven utility cabinets also are available with open-type reciprocating units for use with direct or odd cycle current.

Four of the other nine models in the line are portable units with open-type reciprocating mechanism; five are equipped with reciprocating units which are remotely installed.

All cabinets in the line are of all-steel construction which is said to prevent warping and buckling and to provide a tight seal against air, moisture, and vermin. Although welded steel construction is employed throughout, the special design of these cabinets is claimed to lessen their weight and to exclude the possibility of their opening at the seams when moved. Insulation is of genuine vegetable corkboard.

* * *



Phantom view of Frigidaire 1941 ice cream cabinet with "Meter-Miser."

The 1941 utility models are lower in height, a factor which is said to simplify dispensing. A new 10-hole utility cabinet is available which has a capacity of eight 5-gallon and two 2½-gallon containers. Four of the utility cabinets are designed with a separate shallow compartment which allows for two different temperatures in the same cabinet, with lower temperatures maintained in the shallow compartment than in the remainder of the unit.

Cooling coils of all cabinets are designed to reduce the temperature differential between top and bottom of the compartments through scientific distribution of tubing.

"Freon-12" is used as the refrigerant in all models. A Frigidaire high side float valve controls release of the refrigerant to the cooling coils and automatically maintains the proper amount.

Lids on all models have soft rubber molded around the outer edges to reduce possibility of breakage if dropped.

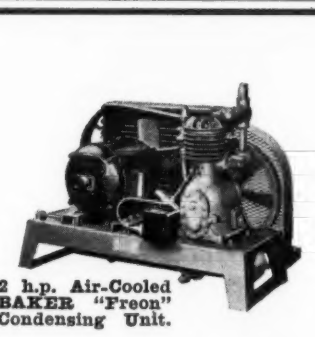
Gale Sends Emil Miller On S. American Tour

GALESBURG, Ill.—Emil Miller of Outboard Marine & Mfg. Co. is now in South America making distributor and dealer contacts for the company's Gale Products division, and in general drumming up sales for the Gale household line. He left Jan. 2 and is to be gone for eight weeks.

'Outstate' Zones Do Best Georgia Commercial Job

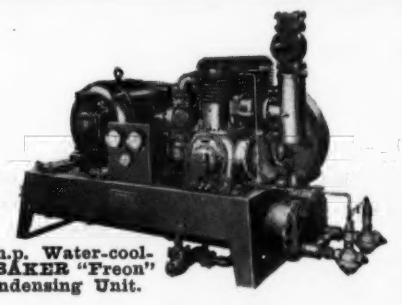
ATLANTA — With refrigeration equipment leading the way, 1940 commercial appliance sales of Georgia Power Co. totaled $424,879.36, higher than the previous record year of 1937, a compilation of totals for the year reveals. Commercial refrigeration sales for the year totaled $181,251.25 to pace all products. Sales of ventilating equipment totaled $47,248.05 for the year, and commercial water heater sales volume amounted to $13,108.42.

Macon division of the company did the best commercial refrigeration sales job, with $34,268.83, with Augusta division second.



2 h.p. Air-Cooled BAKER "Freon" Condensing Unit.

15 h.p. Water-Cooled BAKER "Freon" Condensing Unit.



60 h.p. Water-cooled BAKER "Freon" Condensing Unit.

MORE PROFIT, LESS COMPETITION

with BAKER Commercial and Industrial Equipment

This message may be the key to greater profits for you. Read it carefully . . . consider it fully . . . then act promptly.

● Men who know refrigeration need no longer be content to struggle for small profits in an intensely competitive field. The BAKER franchise opens the door to larger profits, less competition, in the field of commercial and industrial air conditioning and refrigeration.

For example, BAKER equipment is built specifically for such installations as meat packing plants, locker plants, breweries, bottling plants, bakeries, creameries, dairies, hotels, hospitals, stores, ice plants, cold storage warehouses, etc. Competition is greatly reduced because only a few companies manufacture equipment large enough to serve these plants. Strong support for your sales efforts is provided by BAKER'S national advertising in leading trade journals, and by BAKER'S world-wide reputation for unusually high quality, dependability, and operating economy.

Make your knowledge and experience pay bigger dividends—starting this month! Write today for complete details.

BAKER ICE MACHINE COMPANY, INC.
1506 EVANS ST.
OMAHA, NEBR.

Sales and Service in Principal Cities

AUTHORITY ON MECHANICAL COOLING FOR 35 YEARS

For Your Convenience and Profit!

✓ marks the Spot

where you can get PROMPT DELIVERY from stocks

DU PONT Artic The Preferred METHYL CHLORIDE for Service Work

E. I. DU PONT DE NEMOURS & COMPANY (INC.) · The R. & H. Chemicals Department · Wilmington, Delaware
District Offices: Baltimore, Boston, Charlotte, Chicago, Cleveland, Kansas City, Newark, New York, Philadelphia, Pittsburgh, San Francisco

Many Ingenious Ideas Were Used To Obtain Attention at the Third All-Industry Show

1. Jorge Musmanni (left) of the House of Musmanni, macaroni manufacturer in San Jose, Costa Rica, sits for a silhouette by L. Pierre Bottemer, in Virginia Smelting Co.'s booth. Grace Elam Baptist of Virginia's Norfolk office "made the dates" for the many visitors who sought to have Mr. Bottemer "silhouette them." Mr. Musmanni, incidentally, was attempting to find out if air conditioning manufacturers might have a better answer to the macaroni drying problem than the one now used.

2. A refreshing touch was added by the Tuthill Pump Co. booth, where an operating display turned out edible samples for the visitors. H. Lundquist, Rockford, Ill. service engineer (left), seems to be enjoying his cone fully as Harry Kessler (right) Tuthill sales manager, drums up more trade.

3. The Ansul boys always come up with some smart trick that distinguishes them, and at this year's show they showed up in uniform, summery dress, wearing flannels, bright sports jackets, and neckties with the individual's nickname on it. In this group (left to right facing the camera) are "Jim" Hood, George Vermilye, Paul Hammond, West Penn Power Co.; Dr. W. O. Walker, Hugh Higley, and Franklin Wedge.

4. Jas. P. Marsh Corp. had two feature attractions — "boogeyman" Zicarelli and a contest.

5. Peerless of America dressed its girls smartly in uniforms not unlike those worn by airline hostesses.

(1) Automatic Products used operating models of its valves and other items to good effect in panels of its booths. Here they are being inspected by Earl Vallee, vice president and sales manager, and R. W. Johnson, president of Automatic Products Co., and Milton Katz, Everready Refrigeration Co., Trenton, N. J.

(2) A working model of the American Injector Co.'s oil separator featured that company's exhibit, and here we see Sales Manager Ed Kellie and John L. Trix putting things together the apparatus for another showing.

(3) George Hensch of Northern Indiana Brass Co. is an amateur magician by vocation, but here he is hard at work demonstrating how his company's fittings are used. The white "butcher boy" coats are a smart trick, always getting attention. (People apparently like to see other people working.)

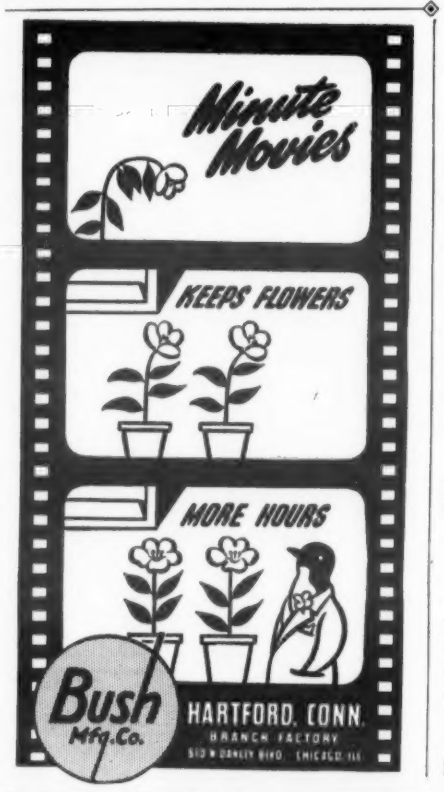
What's New . . . from the All-Industry Show

Editor's Note: This is a continuation of the "round-up" of information on new products shown at the Third All-Industry Refrigeration and Air Conditioning Exhibition.

Unit and Wall Coolers In New Marlo Designs

Two brand-new additions to the Marlo Coil Co. line—a new line of unit coolers and a wall-type unit with three-speed control—were introduced by the company during the All-Industry Exhibition.

The unit cooler line is of pull-through design and of all-aluminum construction. Models are equipped with a Venturi fan ring for quiet operation. Units are available in a full range of sizes, and are suitable for comfort cooling applications.



A New Replacement Seal In Rotary Line

Introduction of nine new replacement seals for household and commercial application featured Rotary Seal Co.'s exhibit at the Show. Three of the new seals were designed for use on Baker compressors, and mark the first time that Rotary Seal equipment has been available for this make of machine.

Of the six other new replacement seals in the Rotary line, two were for Brunner units, and one each for Curtis, Mills, Norge, and Sanitary machines.

Saturated Air Condenser Introduced By Curtis

Pacing the new products parade of Curtis Refrigerating Machine Co. for the year is a new saturated air condenser, which combines the principles of an evaporative cooler and a regular air-cooled condenser, and is said to effect a considerable increase in efficiency over air-cooled units of similar size. Complete engineering details of the new unit will be announced shortly.

Another new development in the Curtis line for this year is the use of a water-cooled motor in its 3 and 5-ton store coolers, for increased operating efficiency and lower operating costs. Models in the Curtis compressor line up to ½ hp. are now available for either self-contained or remote installation. Self-contained units are mounted on a flat base, with a leg-type base available for remote installations.

Leather Seal Dash-Pot In Electrimatic Valves

Improvements not always noticeable but vitally important to increased operating efficiency have been made in Electrimatic Corp.'s line of products. Most notable of these is a leather seal dash-pot which is claimed to eliminate about 85% of the common water regulator troubles. This improvement is the result of tests using various seal materials, conducted over several months.

Grinder Heads, Drill Press Offered By Arcade

Arcade Mfg. Co. had on display its complete line of refrigerator hardware for both household and commercial units. A recent expansion in the company's products line includes two grinder heads and a drill press of the types commonly used by refrigeration service men. These products are available through refrigeration supply jobbers.

The company also is developing a line of extra heavy-duty hinges and fasteners for use in all types of cold storage applications, including refrigerated locker plants.

Superior Develops Device For Showing Heat Exchanger

Service men are likely to see a lot more of the display that formed the center of Superior Valve & Fittings Co.'s exhibit—a demonstration unit designed to show the advantages of the use of heat exchangers in a refrigeration system. The demonstrator will be made available for showing to service men in various jobbers' territories during the year, according to present plans.

The unit is equipped with a ½-hp. compressor, and has a glass evaporator showing the path of the refrigerant through the system. This evaporator is fitted with a heating element, so that actual operating conditions can be simulated.

An arrangement of valves permits by-passing, so that the effect of the use of a heat exchanger on various parts of the system can be demonstrated. Another interesting feature of the demonstrator unit is a provision which permits showing the effect of the use of a heat exchanger on the high side.

Wolverine Demonstrates 'One-Piece' Accumulator

Demonstrated by Wolverine Tube Co. were examples of the various sizes of accumulator shells for refrigeration systems which the company has only recently started to produce by means of a reducing operation (not to be confused with spinning). The whole seamless copper accumulator shell is of one piece.

This method makes it possible to obtain complete closure or necking of a tube within a limited space. Thus, a one-piece accumulator shell is available. Position and sizes of openings at the ends or sides are optional, and the whole piece can be made at a very low cost.

Dayton
V-BELTS
Dayton V BELT
Silent, vibrationless, dependable, long-lasting. Powerful grip prevents slippage. A nearby distributor carries a complete stock for appliance and machines.
THE DAYTON RUBBER MFG. CO., DAYTON, O.
World's Largest Manufacturer of V-Belts

Condensing Units for every commercial refrigeration and air conditioning requirement . . . Also packaged air conditioners.

CURTIS REFRIGERATION AIR CONDITIONING AND COMMERCIAL

Established 1854

Curtis Refrigerating Machine Co.
Division of Curtis Manufacturing Co.
1912 Kienlen Ave., St. Louis, Mo.

BLOWER WHEELS
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'The Customer . . . Is Right' —Al Newton Tells ASRE

Control Methods To Suit Individual Tastes of Air Conditioning Users

What To Do When the User Isn't Comfortable Under Conditions Specified In the 'Comfort Chart'

DETROIT—There is still a real problem in applying air conditioning, particularly with respect to the small, direct expansion job, declared A. B. Newton, manager of the refrigeration division of Minneapolis-Honeywell Regulator Co., speaking before the January meeting of the A.S.R.E. Detroit section. In his analysis of the problems which confront the industry, Mr. Newton traced many to the fact that air conditioning systems seldom, if ever, operate at peak design conditions.

With the growth of direct expansion systems, beginning about 1930, it became common practice to operate several coils from a single compressor. Because of the limited range of conditions under which this type of system could perform, many complications became evident. One of the obvious results, Mr. Newton pointed out, was that systems would operate perfectly at peak (design) capacity, but failed to give satisfaction when operating at one half of capacity or less.

NO GOOD ON MILD DAYS

The public reaction, Mr. Newton found, was that "air conditioning is fine on a hot day—but on a mild day it is no good."

Another weakness of the industry, Mr. Newton indicated, was the tendency to tell people they should be comfortable under such and such conditions, without attempting to find out if they actually were comfortable. As an example, the speaker told the story of a man who had a complete summer air conditioning system in his residence. Being something of an engineer, the owner wrote to the people who had installed the system and said, "My house has a dry-bulb temperature of 78° F. and a wet-bulb temperature of 68½° F. but **we are not comfortable under these conditions.**"

In reply, the owner received a copy of the Comfort Chart, with a circle drawn around the spot on the chart showing the conditions in his home. An attached note stated:

USER GOT A COMFORT CHART

"You can see that the conditions in your home come well within the 'comfort range' on this chart, and **obviously you should have been comfortable** at the time the reading was taken." This kind of an attitude on the part of the air conditioning industry is wrong, Mr. Newton declared.

Citing the work that has been done by Minneapolis-Honeywell in finding out when people are comfortable in the company's own office building, Mr. Newton presented certain results of this research. In a study of 275 workers in this building, it was found that most people liked a slightly lower temperature when they were inside than when they were out-of-doors. It was also found that it was best to let the inside temperature vary a little in relation to the outside temperature, to please the largest percentage of people.

In no case, Mr. Newton pointed out, was it possible to reach an effective temperature (combination of temperature and humidity) when more than 90% to 92% of the people were thoroughly satisfied.

In making an analysis of numerous air conditioning systems Mr. Newton has found that "on-off" control, particularly during periods of mild weather, is at the root of many difficulties encountered in the operation of air conditioning systems. With the average system holding a dry-bulb temperature of 80° F. to 82° F., the relative humidity will stay at from 45% to 50% when the system is under full operating load. Under these conditions the coils handle the right proportion of sensible and latent heat, and the desired effective temperature is maintained.

WHY THE R.H. RISES

As the outdoor temperature drops from 95° F. to 85° F., the air conditioning system is on only for short periods, and off for long periods of time. During an extended operation of this kind, the relative humidity will slowly rise to a point where the inside conditions become decidedly uncomfortable, and while the dry-bulb temperature may be satisfactory, the owner or patrons may complain. The reason for this phenomenon is that the system is not on long enough at any one time to handle the heavy latent load which exists in crowded spaces, and particularly in restaurants where coffee urns are in use.

One way to solve this problem, which is often used in hospital systems and industrial air conditioning, is to re-heat the cooled air. During this process the direct expansion coil is used to remove humidity from the air by dropping the temperature, and the heating coil returns the air to the proper condition for introduction to the room. The chief disadvantage of this method is the high first cost and increased operating expense, the speaker said.

To correct the condition encountered in the operation of direct expansion systems on light loads, without going to the expense of installing re-heating coils, Minneapolis-Honeywell has introduced the Modutron system which throttles the refrigeration capacity to the coil. With this system in operation, the air conditioning compressor will run longer and the relative humidity will rise slowly, but seldom go above 55%.

THE MODULATING METHOD

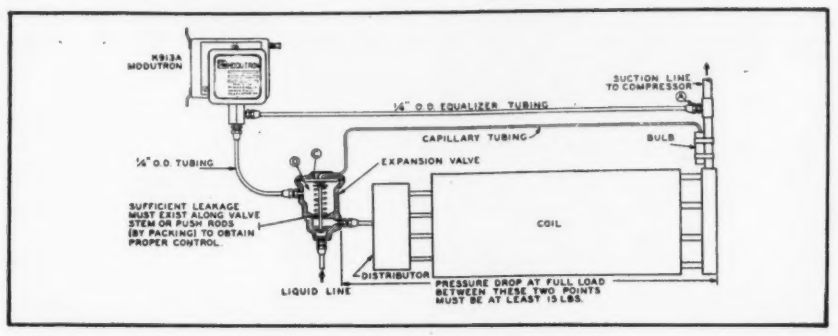
When installed in connection with an expansion valve, the Modutron control throttles the amount of refrigerant flowing to the coil, thus decreasing the coil temperature at the same time the total refrigerating capacity is reduced. This reduction in temperature tends to precipitate more moisture out of the coil, thus handling a better proportion of the latent load. Because the compressor seeks to establish a new balance with the coil, it will operate for longer periods and tend to stabilize the humidity in the conditioned space.

Per Cent Capacity At Reduced Evaporator Temperature

Evaporator Temp. At Reduced Capacity—°F.	Evaporator Temperature at Full Load—Degrees F. 50°	45°	40°	35°	30°	25°	20°	15°
50°	100%							
45°	91	100%			PER CENT			
40°	82	91	100%		CAPACITY			
35°	74	82	91	100%				
30°	66	73	81	91	100%			
25°	59	65	73	80	89	100%		
20°	53	58	64	71	79	89	100%	
15°	46	51	57	63	70	78	88	100%
10°	41	45	50	56	62	69	78	88
5°	36	40	44	49	54	61	69	78
0°	31	35	39	43	47	53	60	68
— 5°	27	31	34	37	41	46	52	59
—10°	24	26	29	32	36	40	45	51
—15°	20	22	25	27	31	34	39	44
—20°	17	19	21	24	26	29	33	38

This table illustrates the per cent capacity the system will have at certain reduced evaporator temperatures.

Modulating Control System Hookup


K913A MODUTRON
SUCTION LINE TO COMPRESSOR
¼" O.D. EQUALIZER TUBING
CAPILLARY TUBING
BULB
¼" O.D. TUBING
EXPANSION VALVE
SUFFICIENT LEAKAGE MUST EXIST ALONG VALVE STEM OR PUSH RODS (BY PACKING) TO OBTAIN PROPER CONTROL
COIL
DISTRIBUTOR
LIQUID LINE
PRESSURE DROP AT FULL LOAD BETWEEN THESE TWO POINTS MUST BE AT LEAST 15 LBS.

Piping diagram for systems having a total pressure drop of less than 15 pounds in the distributor and coil or where modulation to less than 60% of total coil capacity is required.

At this point in his discussion, Mr. Newton was questioned from the floor regarding the increase in operating cost when the Modutron system is in operation. He stated that experience had shown this might run from 8% to 15% more than the ordinary system, but that in all cases on record it had been considerably less than the cost of re-heating, and that the owner of the system had been well satisfied to pay the slight additional operating cost to have the system function in a satisfactory manner during periods of mild weather.

The reason for this increase in cost is that as the suction pressure goes down it takes more power to move the B.t.u. handled by the system. What the owner is paying for is comfort on the "in-between" days, Mr. Newton stated.

'INSTALLED IN SERIES' FAULTS

As it is common practice to control direct expansion air conditioning systems by cutting out one or more of a series of compressors, or by the use of unloaders on cylinders, Mr. Newton discussed this practice in relation to the Modutron system of refrigerant control. The most common way of controlling this type of hook-up is with a step-controller, or series of mercury switches, operated from the suction pressure.

Mr. Newton explained the common difficulty encountered with a control system of this type, that is, that either the upper lower step might be set off of the available range of the compressor and coil. In such cases, the system will not operate, Mr. Newton said. He also pointed out the necessity of having the "steps" at least 2° apart, both up and down, to allow for the transition from one machine or series of cylinders to another. Another common difficulty, short cycling, can be prevented by an analysis of the job, the speaker asserted.

To make this analysis easier, and also to make it possible to test an air conditioning system under existing conditions, rather than waiting until "design" conditions occur, Minneapolis-Honeywell has worked out a special graph paper, on which to plot compressor capacity against refrigerant temperature. The special graph paper is spaced so that the resulting "curve" will approximate a straight line, and make plotting easier. It is also possible to plot the capacity of an evaporator for a given entering wet-bulb temperature against the refrigerant temperature.

USE SPECIAL CHART

The characteristics of the chart permit the prediction of system capacity for a large variety of conditions, and when used with the psychrometric chart, the sensible-latent heat ratio of the entire system may be predicted. Mr. Newton explained the use of the charts to plot the performance of air conditioning systems having several stages of operation under a variety of conditions.

He also explained how the Polarton control, used in connection with commercial refrigeration systems, produced a greater frequency of operation, thus reducing the average relative humidity. Use of an anticipating (heat actuated) thermostat was recommended to meet certain difficulties encountered in walk-in coolers.

Air Rectifying Co., Houston Moves To Larger Quarters

HOUSTON, Tex.—P. Grenader, head of the Air Rectifying & Engineering Co., has announced removal to new and larger quarters at 230 West Gray Ave. here.

Philadelphia Service Men Plan Banquet Feb. 20

PHILADELPHIA—Seventh annual banquet of the Electric Refrigeration Association of Philadelphia, Inc.—which claims to be the oldest independent service men's organization in the country—is scheduled to be held Feb. 20 at Weber's Hof Brau, Central Airport, Camden, N. J.

Service men and their wives from all the metropolitan Philadelphia area, which includes Chester and Norristown, Pa. as well as Wilmington, Del. and all of New Jersey south of Trenton, are expected to attend.

Tickets are available to all refrigeration parts manufacturers desiring them. They should be obtained from Earl F. Barr, 7417 Elmwood Ave., Philadelphia.

Cabin Heating Control Solved, Says Airline

PITTSBURGH — Pennsylvania-Central Airlines engineers have perfected an automatic air-temperature control for modern transport planes to "maintain a constant cabin temperature within 1° of 72° F. between an outside temperature range of 20° below to 70° above zero," and are installing it on all PCA "Capital Liners."

Heretofore, passenger cabins were warmed either by heat from engine exhausts or by a steam system.

Now, however, a small, air-driven motor operated on air pressure obtained from the exhaust side of the vacuum system connects directly to a hand lever at the front of the cabin, and operates the "hot" and "cold" air controls. Expansion and contraction of a liquid sealed-in sensitivity bulbs determines the motor's operation.

The installation, taking advantage of the pressure differential between the main passenger cabin and the cockpit, draws cabin air over the sensitivity bulbs, bringing about an immediate reaction in the motor unit. With cabin air passing over the sensitivity bulbs, the sealed-in liquid contracts or expands, forcing the motor unit to adjust control.

If too warm cabinet air passes over the bulbs, the liquid expands, making the motor push the control valve over to a cooler position. To counteract too cool cabin air, the valve automatically adjusts to the proper warmer level.

Virginia Pioneers—Planting of the cross at Cape Henry, Virginia, by the first permanent English settlers in America, on April 26, 1607.

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Random Moments From 1941 All-Industry Exhibition Album of Memories

Snapshots from the All-Industry Exhibition: (1) Jim Hatch, genial president of Bush Mfg. Co., passes the time of day with Ted Glou, hustling Syracuse and Scranton jobber; (2) Mrs. Ed Henderson greets the president of Universal Cooler Corp., F. S. McNeal, at the Business News Publishing Co. booth; (3) Big Chief Tecumseh see no evil; (4) Ed Henderson, circulation manager, listens with both ears and tells a service man that the answers to his problems will be found in the weekly issues of the NEWS.

'Jobbers Not Prepared To Get Air Conditioning Trade'--Allen

Now Lack Proper Inventories and Engineering Knowledge To Supply Needs of Contractors

CHICAGO — "The refrigeration parts and supplies wholesaler must prepare himself first, from an inventory standpoint, and secondly, to furnish competent engineering service, if he is to find a place for himself in the air conditioning business," W. C. Allen, vice president and sales manager, Modern Equipment Corp., warned members of the National Refrigeration Supply Jobbers Association at their annual convention here Jan. 13-15.

"With regard to your future in the air conditioning branch of the industry, unless there is a complete reorganization of some of the present methods, with regard to sales, inventory, and engineering service, you have no place in air conditioning—this is rather a bold statement—which is made on the basis of personal observation," Mr. Allen jolted the jobbers in opening his talk.

"I am very familiar with about 100 jobbers in this business operating from coast to coast, and from Canada to the Gulf of Mexico. Any remarks made are from observations in these many establishments.

"I do not believe that the refrigeration supply wholesaler is equipped with an adequate inventory of the many common items used in making an air conditioning installation," declared Mr. Allen.

"Last summer I made an air conditioning installation in the home of a friend—personally laid out the job and personally installed it. My object in personally handling both the layout and installation work was to keep up to date in an industry in which I devote practically all of my time.

"This particular installation was one of those kinds which the buyer gave us carte blanche to install whatever was required to make a complete and perfect installation.

COMMON ITEMS NOT AVAILABLE

"In selecting the accessories to be used in addition to the high side and low side equipment, I naturally turned to the wholesaler to secure the accessory items. Much to my amazement it took considerable time to locate some very common accessory items used on this small air conditioning installation.

"It took two jobbers' stocks to supply a ¾ and 1⅛-inch vibration eliminator. One jobber could not supply these two common items.

"Three long distance telephone calls failed to locate a 3-ton air conditioning dehydrator. I ended up by wiring the manufacturer direct for the drier.

"Two long distance telephone calls failed to locate a 1⅝-inch sweat elbow. I finally found it and purchased it from an air conditioning contractor.

"You will see from this experience what I meant when I referred to the inventories in this industry not being adequate to function as a supplier to the air conditioning contractor, and air conditioning distributor.

NOT A 'BROKERAGE'

"Gentlemen, you cannot conduct a wholesale business on brokerage methods, and expect consideration from the trade which you are attempting to service," said Mr. Allen, with emphasis.

"If you expect to get the supply business or the accessory items used on air conditioning installations, you must make a study to determine the common used and needed material, and arrange to properly stock these items.

"Too many wholesalers in this industry are attempting to conduct a wholesale business on brokerage methods, and expect a wholesale profit on brokerage service.

"While on the subject of your function as a broker, a jobber, or a wholesaler—the name jobber as pertains to your business has always been a pet peeve of mine," asserted the Modern Equipment Corp. executive. "I believe it is a misnomer. Let's look and see how Webster would class you in the dictionary.

"Broker—a dealer in money, drafts, stocks, etc. A go between—a commissioned agent.

WEBSTER DEFINES A 'JOBBER'

"Jobber—a worker by the job, or on job work, a middle man, a corrupt politician.

"Wholesaler—one who sells by the piece or in large quantities as distinguished from retail. Selling to retailers rather than consumers.

"Again let me repeat, with but few exceptions among the establishments I am acquainted with, I do not think your branch of the industry is organized from an inventory standpoint to command much consideration from the air conditioning contractor.

"In fact I dare to make the statement that there are too many so-called refrigeration supply wholesalers enjoying wholesale discounts who do not carry adequate inventories to serve ordinary domestic and commercial requirements. How could this type of wholesaler function in supplying the air conditioning contractor?

"I would like to tell you about two instances which have happened to me in the past 90 days.

"One of our wholesalers located in a midsouthern city has enjoyed an increase in the sale of our equipment in the year 1940 of more than 400%. This increase being rather phenomenal, I made a special trip in October to visit this wholesaler, to have him tell me what was responsible for this phenomenal growth.

"The office of this wholesaler is located across the street from his display room and warehouse. After we had visited for a while I asked him the question:

" 'What was the reason for your phenomenal growth in the sale of condensing units?'

"He asked me to take a walk across the street with him. Upon entering his store he pointed very proudly to a rather unusually nice display of our equipment. We then walked to the rear of his store where there was piled up in one corner a complete inventory of all of the popular sizes of commercial high sides. His statement was:

CUSTOMERS WON'T WAIT

" 'We display the merchandise where all of our customers can see the equipment, and we arrange to keep our inventory in good shape so that we can always take care of their immediate requirements from stock. We have learned in this business that our customers won't wait for merchandise. They expect us, as a wholesaler, to have all of the items which they need in stock for their immediate requirements.'

"About this same time I received a letter from another wholesaler located in a middle western city, asking permission to return four high sides for credit. He stated in his letter that he wanted to retain one high side for display, that he felt that he could still do a fair sales volume by making direct shipments to his customers on high side orders. This wholesaler without definitely stating so, in so many words, implied that he desired to operate a brokerage business.

"I do not feel that this type of wholesaler has a very bright future in the refrigeration supply business, and could hardly hope to function in the air conditioning branch of the industry.

ENGINEERING IS NECESSARY

"Step No. 2 deals with engineering problems," continued Mr. Allen. "To properly function as a wholesaler of air conditioning supplies and equipment, I believe it is going to be necessary for you to have a competent engineer on your staff. Without proper advice and guidance, your mistakes will be many and costly.

"To be brutally frank, I think there are too many wholesalers in this industry today which are opportunists, and are not functioning as efficiently as they should or could in the commercial refrigeration business. The engineering services being rendered by the average wholesaler on common commercial applications is very inadequate.

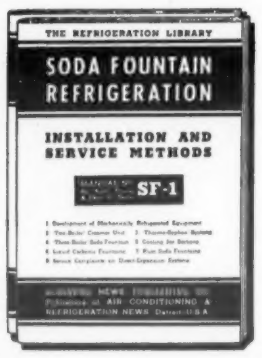
"Recently one of our wholesalers had sold a 2-hp. high side to be used on a two-temperature application. After the installation was made and proper results were not obtained, the wholesaler called us on long distance telephone and stated that the compressor on the high side recently shipped for this installation was bad. The compressor valves were leaking terribly. He had to have a replacement pump immediately.

"We shipped a replacement pump, and it was installed on the job with no better results. After having installed the second compressor the wholesaler and the installation contractor drove to Defiance, and secured a second set of valve plates, explained his application to us, we offered some suggestions, but not being on the location where the installation was made, it was difficult to try to analyze the problem.

"A third telephone call asked if we would send our engineer to the location to try and help them out. This we did, and found that their whole problem was the result of the wrong type of two-temperature valves. Two compressor replacements and an extra set of compressor valve replacements were made, simply because neither the contractor, nor the wholesaler selling the equipment, could lay out a two-temperature installation with the proper type of needed accessories. The added expense that this wholesaler had on this particular installation would go a long way toward paying part of the cost of an engineering department.

"With the inadequate knowledge and poor engineering service being rendered by the wholesaler on such common commercial applications," Mr. Allen pointed out, "it can hardly be expected that the refrigeration supply wholesaler can function in the air conditioning industry, unless they prepare themselves to render a better service to the air conditioning contractor.

"I do not wish to leave the impression that the situation and your future in the air conditioning industry is to any degree hopeless, however, I wish to convey the information that you must analyze your own business from a sales, inventory, and engineering standpoint, and prepare yourself to function in a way that will secure for you a fair share of the available business."



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SALES ENGINEER with several years experience in commercial refrigeration, air conditioning, and domestic heating; capable of handling correspondence and office details, and limited amount of field work for large national manufacturer; college graduate, age 25-35 preferred. Write Box 1306, Air Conditioning & Refrigeration News.

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A REFRIGERATOR Gasket manufacturer seeks representation. One who is now calling on Commercial Refrigerator Trade and Jobbers. Box 1297, Air Conditioning & Refrigeration News.

FRANCHISES AVAILABLE

SEND FOR PRICES and literature on the General 1941 all streamlined refrigerator display case line. Over 40 years experience manufacturing good commercial refrigerators. On a comparative price test with other makes of equal specifications, prices are lowest in the country. GENERAL REFRIGERATOR & STORE FIXTURE CO., 5th & Bainbridge Sts., Philadelphia, Pa.

ROYAL'S SENSATIONAL new beer wall display and storage cabinet will be made available to a limited number of established commercial refrigeration dealers. The cheapest per bottle dry storage and display unit on the market holds from fifty-six to 110 cases, in five to ten-foot lengths. Completely porcelain finish, inside and out, fluorescent interior lighting. Write for full details on this high quality specialty item. ROYAL STORE FIXTURE COMPANY, 847-49 N. Broad St., Philadelphia, Pa.

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EQUIPMENT FOR SALE

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Eastern Servel Meeting To Be Held Feb. 7-8

(Concluded from Page 1, Column 5)

tell about "Meeting the Demand"; and Mr. Aulsebrook will return to the platform with the poser, "Would You Believe It!" Harry Newcomb, general manager, will explain why "There Is No Substitute For Experience"; Mr. Olin will forecast "Futures in Ice Cream," and Mr. Terhune will again close the session with details of "The Squeeze Play." Inspection of allied products will follow the session.

Dinner that evening in the main ballroom will have as speakers Louis Ruthenburg, president of Servel; Harry Newcomb, general manager; and George F. Taubeneck, editor of the NEWS. Mr. Terhune will be toastmaster.

Session on Feb. 8 will open with a discussion by Mr. Olin of "Life Begins at Zero." Next, Dr. Alan A. Stockdale of the speakers' division of National Association of Manufacturers will talk on "Business Looks Ahead." Formal sessions will close with a discussion of "Organized Service" by Mr. Reed.

Major Outlets Object of Crosley 'Teaser' Drive

(Concluded from Page 1, Column 4)

to talk about Crosley refrigerators and the nicest profit deal ever offered you," this message read. "We'll be calling you any day now."

All this was part of a campaign by the major stores division of Crosley Corp., headed by B. T. Roe, with its objective the addition of a large number of big-volume outlets for the 1941 refrigerator line.

Crosley's refrigeration activities were started at the national convention in Cincinnati in December. This was followed by a series of sales schools for distributors' wholesale salesmen.

"Open house showings" by Crosley distributors for their dealers constituted the third step in the three-point program to introduce the 1941 refrigerator line to the public.

Restaurants Again Lead Chicago Installations

(Concluded from Page 1, Column 4)

gating 4,946 hp. reported in 1939 and 367 jobs totaling 12,213 hp. in 1937, the former record year. The 1,001 electric room coolers purchased by Chicagoans surpassed the 1939 record figure by 129.

For the sixth consecutive year, the highest number of central-plant air conditioning installations was in restaurants. General offices and buildings ranked second on the list and drug stores third. Following is a complete tabulation of systems sold in 1940 and 1939:

	1940	1939
Restaurants	113	93
General Offices and Buildings	79	61
Drug Stores	31	39
Clothing Stores	29	21
Funeral Parlors	24	11
Candy Stores	11	7
Miscellaneous Stores	11	11
Theaters	11	10
Bowling Alleys	10	5
Miscellaneous Industrial Plants	10	10
Candy Factories	9	8
Fur Stores	9	6
Private Offices	7	10
Food Stores	6	15
Doctors' and Dentists' Offices	5	2
Studios	5	2
Residences	4	4
Shoe Stores	4	5
Hotels	3	3
Barber Shops	2	2
Beauty Shops	2	3
Hospitals	2	1
Club	1	0
Industrial Bakeries	1	2
Banks	0	2
Print Shop	0	1
Totals	389	334

Knoxville Trade-In Code Revised on Ice Boxes

(Concluded from Page 1, Column 4)

taking trade-ins on low-cost special 6-foot models."

Other recent changes in the retail operating code include the reduction of the maximum allowance on metal ice refrigerators from $10 to $5, the same as had been allowed on wooden ice boxes. In another change, ranges and water heaters will be advertised at "installed" prices only. Formerly a deduction of $15 was allowed from the cash price where no wiring was required.

York Stockholders to Vote on Merger

(Concluded from Page 1, Column 3)

funded debt which it proposes to attempt vigorously promptly upon the completion of this plan.

Although assents from only two thirds of the total stock are legally required, the directors state that they reserve the right to declare the merger effective only when assents are received in an amount sufficient in their opinion to warrant consummation of the plan. It is stated that in excess of 28% of the preferred and 51% of the common have already executed proxies indicating their approval.

Stockholders of record on Feb. 10 are entitled to vote at the meeting called for March 25, 1941.

National manufacturer of heating and air conditioning equipment will employ a representative experienced in handling wholesale and retail dealer accounts. Specialty selling experience also highly desirable. Compensation will be adequate salary and expenses plus a bonus. Replies must be accompanied by a recent photo and will be held strictly confidential.
Our organization knows this advertisement is being run. Box 1302, Air Conditioning & Refrigeration News.

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Replacement High Side Floats for HERMETIC Units
Aminco No. 369 is recommended for replacement, on hermetic units. A complete replacement—it should not be disassembled. An Amincol seat prevents corrosion and eliminates float trouble due to acid in the system.
Nos. 367-368 are suitable for replacement in a number of well-known refrigerators. May be used with SO_2, CH_3Cl and "F-12." Send for bulletin No. 30.

Nos. 367-8
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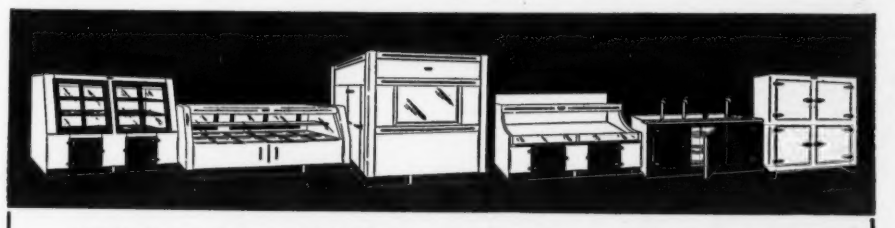
Pacific Coast: Van D. Clothier, 1015 E. 16th, Los Angeles
Export: Borg-Warner International Corp., 310 S. Michigan Ave., Chicago, Ill.
No. 369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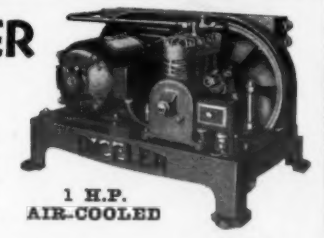
For Design, Construction and Service the most is offered by DICELER. You'll find it worth your while to get all the facts about DICELER compressors in both air and water cooled models from ⅛ H.P. to 30 H.P. Write for the DICELER catalogue and learn how you can gain greater sales and increased profits.

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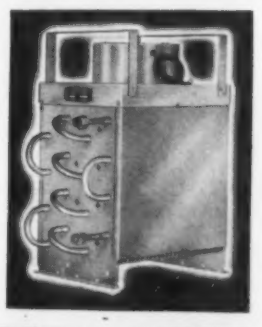
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For Information on Motors
FOR ALL TYPES OF
Air Conditioning and Refrigeration Equipment
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Laboratory For Testing Cotton Is Conditioned

SYRACUSE, N. Y.—Air conditioning is playing an important part in every phase of the textile industry today, from the research and testing laboratory to the mill and even to the general offices and salesrooms, relates Edward T. Murphy, vice president in charge of marketing, Carrier Corp.

Citing the case of the Bibb Mfg. Co. of Macon, Ga., Mr. Murphy pointed out that a cotton testing laboratory and a large central station air conditioning system had just been installed in the Bibb company's Columbus mill.

"Textile manufacturers realize the importance of controlling atmospheric conditions today," Mr. Murphy said. "These cotton testing laboratories, the first installations of this kind at the Columbus mill, prove this point. Normal test conditions of 72° and 65% relative humidity will be maintained, but other kinds of laboratory tests will be conducted under widely varying atmospheric conditions," said Mr. Murphy.

In the main weave shed of the mill, temperature of 88° and humidity of 75% are maintained by the Carrier air conditioning system. These conditions are generally considered best to weave properly and process tire cord and to keep mill production costs at a minimum, Mr. Murphy said.

Operating and Service Methods For Dry-Expansion Counter Freezers

By Arch Black and Dean C. Seitz

Editor's Note: This is one of a series of articles on the servicing of counter-type ice cream freezers, which have been appearing in the issues of AIR CONDITIONING & REFRIGERATION NEWS in the past few months. It will form one section of a general series on the servicing of low temperature equipment.

Checking Controls on Taylor 'Freez Master'

TIMER CONTROL

Timer control (see Figs. 21 and 22) is enclosed in a metal box mounted on the back of the front plate, and it has two mercury tube switches mounted on a movable plate with the switch lead connected to a bakelite terminal board.

Movement of the plate is controlled by a double cam under the left end as viewed from the back and by a single cam under the right end. The plate is guided by four small projects that fit into a vertical slot in the timer frame. The single cam is driven by the clock motor mounted on the back of the timer control, and its shaft extends through the freezer front plate to the "Start" knob (see Fig. 20) which rotates continuously with the cam. The control knob on the front of the freezer (see Fig. 20) moves the double cam which is held in any position at which it is set by means of a strip spring pressing against a shaft collar at the front of the timer.

The raising and lowering of the end of the plate tilts the mercury switches to the make and break positions.

With the control knob in the "Off" position, a single cam and start knob will rotate every 10 minutes, but will not tilt the mercury tubes far enough to make contact. With the control knob at any of the numbered positions, the single cam will tilt the mercury tubes "Closed" and "Open" at regular intervals, making a complete cycle every 10 minutes.

Each cycle will begin when the "Start" knob reaches an upright position. Both of the tubes will close the circuit at the same time, but the front tube, controlling the operation of the solenoid valve, will break contact from 30 to 60 seconds before the rear tube controlling the beater motor. This allows the beater motor to continue to run while the compressor is pumping the refrigerant left in the shell and in the liquid line between the solenoid and expansion valve.

The numbers on the control knob dial indicate approximately the number of minutes the beater will operate, and the solenoid valve will remain open from 30 to 60 seconds less. With the control knob set at "On" the single cam will continue to rotate, but will not tilt the mercury tubes far enough to break contact.

CHECKING PERFORMANCE

After plugging in the unit turn timer control to "On" and see that the compressor motor belt tightener is operating. See also that the beater motor belt tightener is operating and that the beater drive shaft, inside the shell, is rotating counter-clockwise.

Open the freezer door wide and check the operation of the timer control with the knob at "Off," No. 2, and "On" positions. (Note: See above under timer control when mercury tubes are tilted, etc.)

As stated previously, in the information on timer control, the mercury tubes close and open at regular intervals and make a complete cycle every 10 minutes. The higher numbers of the control knob dial indicate longer closed portions of the 10-minute cycle. When the knob is set at No. 2, both tubes will make contact at once, starting the beater motor and opening the freezer solenoid valve with a sharp click.

Rear tube controlling the beater motor will remain closed and the beater motor will operate approximately two minutes. The front tube controlling the freezer solenoid valve will break contact and close the valve from 30 to 60 seconds before the rear tube stops the beater motor.

Running part of the cycle begins when the knob is at "Start," but it may be manually set to the beginning of the running time, the beginning of the "Off" time, or any other point desired.

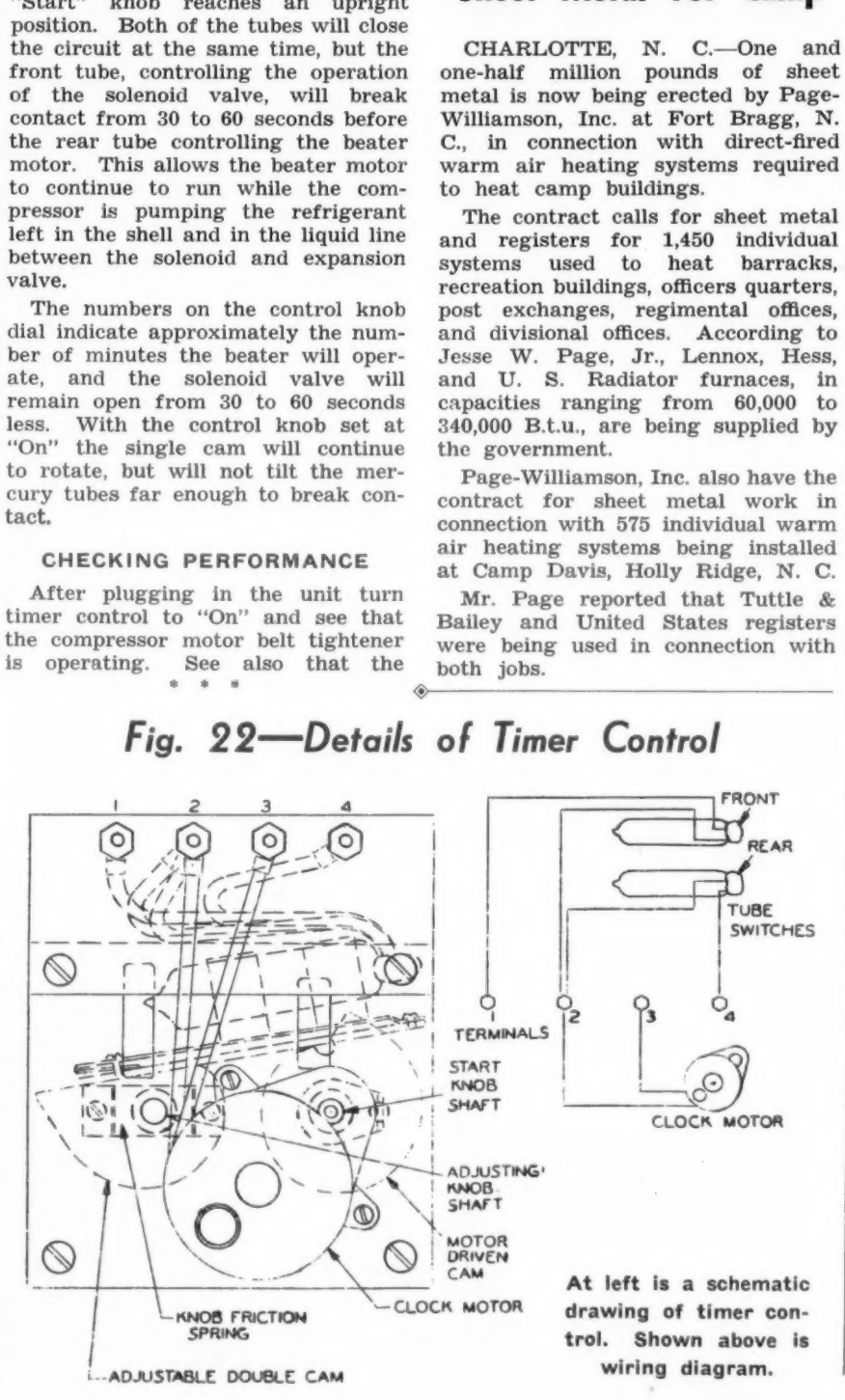
CHECKING ELECTRICAL PERFORMANCE

Set timer, beater motor switch, and thermostat to "Off." Beater will stop and compressor will stop after pumping down to the cut-out point of the pressure switch.

Set thermostat of the mix compartment to its coldest position and mix compartment solenoid valve will open with a click, due to the rise in suction pressure from the mix compartment coil the compressor will start. Beater motor will run when the beater motor switch is on the "On" position.

* * *

Fig. 22—Details of Timer Control



At left is a schematic drawing of timer control. Shown above is wiring diagram.

1½ Million Pounds of Sheet Metal For Camp

CHARLOTTE, N. C.—One and one-half million pounds of sheet metal is now being erected by Page-Williamson, Inc. at Fort Bragg, N. C., in connection with direct-fired warm air heating systems required to heat camp buildings.

The contract calls for sheet metal and registers for 1,450 individual systems used to heat barracks, recreation buildings, officers quarters, post exchanges, regimental offices, and divisional offices. According to Jesse W. Page, Jr., Lennox, Hess, and U. S. Radiator furnaces, in capacities ranging from 60,000 to 340,000 B.t.u., are being supplied by the government.

Page-Williamson, Inc. also have the contract for sheet metal work in connection with 575 individual warm air heating systems being installed at Camp Davis, Holly Ridge, N. C.

Mr. Page reported that Tuttle & Bailey and United States registers were being used in connection with both jobs.

Carrier Combines Dallas Offices In One Structure

DALLAS, Tex.—Reflecting the trend to windowless, air conditioned buildings, a thoroughly modern office-and-shop has just been opened by Carrier Corp. in the heart of Dallas, to serve as the southwestern headquarters of the firm.

Combining offices and engineering departments of the Carrier-Bock Corp., Dallas distributor for Carrier, and the district office of the Carrier Corp. under the same roof, the building is a remodeled, one-story structure located at 708-10 N. Harwood.

"Because of the increase in air conditioning business in the southwest in the past few years, we decided it would be to the best interests of all to combine all offices and shops in the same building," J. I. Lyle, president, said. "This will do away with lost motion and keep the various departments in closer contact."

Each office has its independent heating and cooling system. A Carrier truck cooling unit, evaporative condenser, and Carrier Weathermaker, with a by-pass, supply cooling to the Carrier district offices.

The Carrier-Bock office section of the building is air conditioned with a 3-ton Carrier electric motor driven installation. Both sides of the building are heated with Carrier gas-fired, duct-type heaters.

Prepare . . . FOR BIGGER PROFITS with Sherer . . .
Make sure of your share of 1941's extra business by selling Sherer—a complete line of display and storage refrigerators, backed by close factory cooperation. Write for franchise details.
SHERER-GILLETT CO. • MARSHALL, MICHIGAN

BALANCED-ACTION for Easier Operation
RECOMMENDED
Balanced-Action equalizes pressures on both sides of the valve seat at the instant of opening. Equalization takes place through a balancing channel located in the valve stem. This exclusive Henry feature assures that the valve will always open positively and close easily.
HENRY BALANCED-ACTION DIAPHRAGM PACKLESS VALVES
HENRY VALVE COMPANY
1001-19 N. PAULDING AVE., CHICAGO, ILL.
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A SINGLE CONTROL Universal in Application
THE NEW POLARTRON FOR PRESSURE CONTROL UP TO 1 H.P. A.C
Note these Advantages
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MINNEAPOLIS-HONEYWELL REGULATOR COMPANY
2807 FOURTH AVENUE SOUTH, MINNEAPOLIS, MINNESOTA
REFRIGERATION Control
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You can SPEED UP your flaring!
• The new Imperial Flaring Tool with slip-on yoke, provides ease and speed of operation never before attained in a flaring tool.
The yoke is made so that it can be slipped on over the bar without twisting or turning. The inside edges of the yoke are slotted so that once in position a slight turn holds it in place on the bar. Yokes are made of forged steel.
An additional advantage of this tool is the construction of the bottom of the yoke, which permits flares to be made where there is little space between nut and the end of tubing. Fin tubing sometimes offers this problem.
Flares soft copper, brass or aluminum tubing.
No. 185-F Imperial Flaring Tool, flares ¼", ⅜", ⅜", ½" and ⅝" O. D. tubing. Price each.....$4.25
Also available for all other sizes of tubing.
THE IMPERIAL BRASS MFG. CO., 565 S. Racine Ave., Chicago, Ill.
IMPERIAL VALVES • FITTINGS • TOOLS CHARGING LINES • FLOATS STRAINERS • DEHYDRATORS ORDER FROM YOUR JOBBER

INVESTIGATE NEW TYLER DRY-KOLD BEVERAGE COOLER
★ SALES POSSIBILITIES exist everywhere, right now, for this better, more sanitary DRY bottle cooler. The complete Tyler line for 1941 is just as up-to-the-minute and salable—with Sectional Steel Clad Walk-In Coolers, Welded Steel Reach-In Boxes and Display Cases to meet every possible need. Write TYLER FIXTURE CORPORATION, DEPT. R-1, NILES, MICHIGAN, today!
TYLER DEALERS ARE MAKING MONEY!

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AIR-MAZE
Permanent Air-Filter Panels
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ROOMS WITH PRIVATE BATH from $2.
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HOTEL KINGS-WAY

Serviceman--a Business Man--

Herbert Explains Things a Shop Owner Must Do To Become a 'Businessman'

By T. T. Quinn

CHICAGO—The refrigeration service man is a business man, as much a part of the business life of his community as is the lawyer, the grocer, and the physician—and if he is to realize to the fullest extent his importance in and responsibility to the community, he must conduct his operation on the same plane as do his other business associates.

Importance of the refrigeration service business man as an integral part of the business community was emphasized by C. B. Herbert, of Herbert Refrigeration, Waterloo, Iowa, in an address at the seventh annual convention of Refrigeration Service Engineers Society here.

As a business man, the refrigeration service man should take part in community activities, Mr. Herbert declared, just as do other business men. Also, and probably more important, he should establish a definite "business policy" as to how his operations are to be conducted. This policy should be expressed in detail, and should outline company practices as to guarantee of labor, parts replacement, business attitude, credit details, discounts, prices, and delegation of responsibility within the organization.

It should be in such form that all employes of the service organization will understand it, and can make decisions in line with it during the absence of the manager himself. All deviations from recognized policy, said Mr. Herbert, should be attended to by the manager, who has final responsibility in the matter.

Emphasizing the importance of proper business records in the conduct of a refrigeration service operation, the speaker declared that a majority of today's business failures occur in firms "that keep no definite record, or records without a purpose."

WHY RECORDS ARE IMPORTANT

It is compulsory to keep records of business transactions for tax purposes—but this represents only a minor use of such records in the well-run business, Mr. Herbert asserted. "The time will come, if you have not already experienced it," he declared, "when your business records will serve to obtain credit for you when the outcome may mean success or failure for your business. If you, as a business man, can show a set of business records that are adequate to a credit investigator, he will offer you suggestions in a number of ways, and help you to establish yourself for credit purposes.

"The most important part of business records," said Mr. Herbert, "is an establishment of costs which will actually tell you whether or not you made money.

"Can you sign an affidavit today and truthfully make a statement as to your accounts receivable, your accounts payable, your merchandise inventory, and your depreciated equipment inventory? With adequate systems of business records, you can do just that. It takes the guess out of business.

WHAT RECORDS TO KEEP

"A practical way for you to establish a system of record-keeping is to write down all of the answers that you would like to know regarding your business conditions and contact a competent supplier of bookkeeping systems, who will establish your records in a manner that your business conditions may be analyzed daily, weekly, or monthly, as you wish.

"With the personal attitude of the constitution and the adequate records established, we now arrive at the problem part of your business—service operations—which are justifiably and ably stressed by good refrigeration businesses. From a profit standpoint your service may be good or bad, depending entirely on your ability to organize yourself and your work so the efforts of your personnel will be efficiently rendered.

"Remember that a serviceman in the field is practically his own boss. He has to make decisions of a business as well as a mechanical nature. If you are a serviceman, the business decision in the field and the mechanical ability is all up to you. But there is someone besides yourself operating this business, as the telephone must be answered.

"When you employ a serviceman, you think first of his experience, second—his mechanical ability, and third, his personality and capability to get along with the customers, and along with this, honesty, industry, sales ability, and a number of other characteristics which a serviceman, to be worthy of the name, must possess.

"It is often the case that we find personality and ambition, together with general intelligence and salesmanship, preferable to experience, because experience alone is not enough.

KEEP IT CLEAN!

"If you are an experienced operator, your service shop is a wonderful salesroom. Good shop equipment, arrangement, and careful use of paint, and the diligent use of a broom will pay dividends. It will instill confidence with your customer to get the overhaul job, if your shop is clean and properly equipped. If you must save old inoperative switches, etc., establish a morgue or mystery room with a lock, so that your customer will have no reason to lose confidence in the good points of your shop.

"Consider it as a sales room and have the atmosphere of the shop one that will inspire, rather than depress your customer. Remember, the refrigeration equipment that you are discussing with the prospect may be the only equipment that he owns, and in his mind the best. You will unconsciously do better work and the customer will gladly pay a better price with more satisfaction for both.

COLLECTION POLICY

"Some business men succeed on their ability to collect bills. It is a point of vital importance. You are selling labor—time by the clock. To us who pay the weekly salary checks, it is tangible; to your customer it may be untangible. Therefore, your services will necessarily be on more of a c.o.d. basis than your merchandise sales that may be repossessed.

"A plan that has proven successful is the payment of collection commission to the servicemen for collection when the work is finished, which reduces office expense. It is a good plan to itemize your receivables each month according to the age of the accounts and press collection on those accounts which are more than 30 days old. A complete analysis of your accounts receivable each month with an elimination plan as they are paid will help you considerably in establishing the credit possibilities of various accounts, and will tend to develop a credit-conscious attitude among the personnel.

HOW TO ADVERTISE

"The refrigeration business has problems in advertising which are very much the same as for other service businesses. Care in spending money for advertising is very important. We have made an attempt to analyze the profitable advertising phases in our particular locality. This, of course, will differ slightly with the community. The most profitable to us in the rotation named are:

1. Telephone directory
2. Service labels
3. Direct mail
4. Personal contact
5. Truck
6. Word of mouth
7. Business location
8. Newspaper
9. Invoice stuffers

"These are classified according to their relative costs and the results obtained. It may be possible to get more business by newspaper advertising than by direct mail.

"We all sell something, and our ability as salesmen offers confidence and earning power. In your refrigeration business, if you sell service, at sometime or other, you have the opportunity of selling a finished product.

"There is no reason for you to sell at a lower price than the sales organization, as you have personal services to give with the product you sell. This, in a large number of instances, is the reason you are given the opportunity to sell finished products. Customer confidence is your greatest asset, and careful handling of it will increase your financial gains.

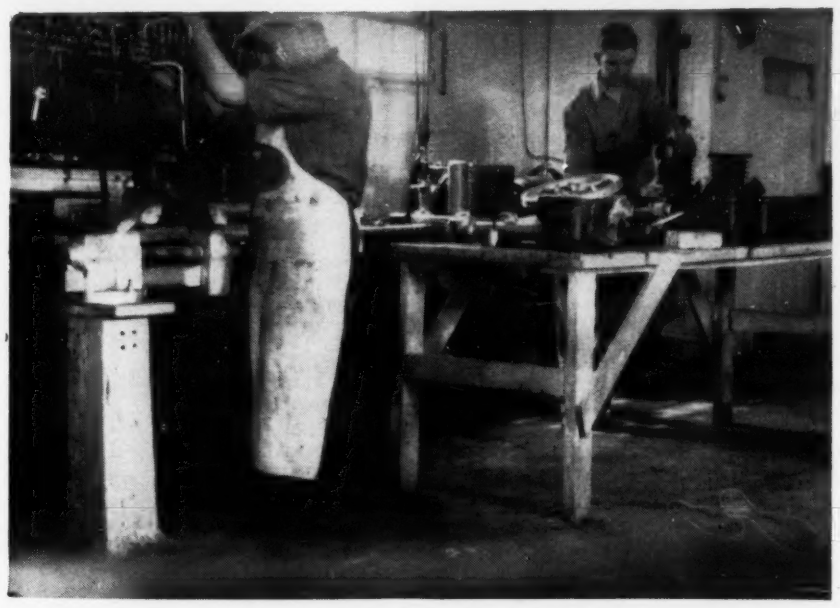
"The purchasing phase of your business is so important that it is impossible here to express all of the reasons why you should purchase this item and not that item. Take into consideration that you may receive a wonderful offer if you will purchase a certain quantity of various items that may not become obsolete before your supply is exhausted.

"If you will discuss the stocking of various parts with the jobber who calls on you regularly, he will point out which are fast-moving items and which are not. If a saving can be effected on a fast-moving item in the purchase price, and also a saving in freight and handling charges, remember, this is an additional profit for you and will tend to offset some of the expense that you may have in stocking slow-moving items.

"An inventory record of parts in stock may save you the embarrassment of duplications in purchase with the resulting loss of time on the job, or the fact that you may be forced to carry the other items in stock for an indefinite period, and an investment in parts is money which may be used to advertise in some other phase in your business.

"Gain the confidence of the jobber from whom you purchase. You will be surprised at the service he will render you, not only in prices, but he is a salesman, and if you do not derive direct benefits from his contacts, he will discuss problems of the business with you; you will find him happy to cooperate, and he will sell with you, not to you."

The Front Is Important, Too—



A well-equipped shop like this and the type of experience that insures good mechanical work is necessary for a successful refrigeration service firm, but the man at the head of the business must know something about business methods too, if he is to make a good of it, C. B. Herbert pointed out to his fellow service engineers at the recent convention in Chicago.

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DETROIT

ASE Frost-n-Food Lockers
Sold Only Through Dealers Will Add to Your Income Quickly, Easily
Write for Descriptive Folder
ALL-STEEL-EQUIP CO., INC
101 Kensington Ave., Aurora, Ill

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Engineers & Salesmen Can Get In Focus Through Eyes of User

. . . Consensus of A.S.R.E. Conference

CHICAGO—In the refrigeration industry, engineering and selling can coordinate their activities most effectively only if both technical men and salesmen slant their activities "through the eyes of the user." This was the consensus of opinion expressed by speakers and discussion leaders at the Conference on Refrigeration Selling, held during the Third Annual All-Industry Exhibition under sponsorship of American Society of Refrigerating Engineers.

More than 150 persons attended the meeting, purpose of which was to consider some of the methods of achieving better cooperation between engineering and selling. George F. Taubeneck, editor of the NEWS, was chairman.

From the opening paper, prepared by David C. Prince, manager of commercial engineering of General Electric Co., and delivered in his absence by D. A. Yates, also of General Electric, to the masterful summary by Dr. Kenneth Dameron, professor of marketing at Ohio State university, was stressed this central theme:

That neither strictly technical selling, as typified by the research and development engineer, nor wholly emotional or "idea" selling, as practiced by some salesmen, can realize its greatest potential alone; and that the two extremes must be blended if the best interests of that all-important individual—the user—are to be served most effectively.

The salesman can best fulfill his part of this cooperative effort by relaying to the development department ideas as to what improvements might be welcomed by the user, while the research man, in his turn, can aid in the work by incorporating the best of these ideas into a sounder, simpler product.

DAVID PRINCE'S BELIEFS

In its best sense, technical selling includes both the knowledge of technical data and an understanding of basic selling fundamentals, plus what is more important—a knowledge of how and when to use this information, Mr. Prince pointed out in his paper.

"The job of technical selling is to see that all the qualities that make for long and trouble-free service—all the characteristics that make a product 'right' from an engineering standpoint—are present, and to see that the prospective purchaser knows they are present," Mr. Prince declared.

"But it must go further than that. The job must have been analyzed and coordinated from an overall viewpoint. The application man must have known nearly as much about the refrigeration problem as the refrigerator manufacturer, in order to take advantage of such opportunities as can be realized only when the end sought is seen as a whole."

When the housewife goes to a dealership to buy an electric refrigerator, she is interested in conveniences and appearance; her husband, on the other hand, is mainly interested in whether the unit will operate economically, the reputation of the company, and its service policy. Of course, the price must be right.

But answering these questions is not technical selling, Mr. Prince declared.

"Materials used have not been specified, the mechanical tolerances and design details have not been discussed. Efficiency curves were not shown, nor were the results of tests on hot and cold starting or noise room measurements. Service statistics were not gone over, showing how many machines had run five years without a service call, and what was the matter with those that did require attention."

What we know as technical selling had its inception in the electric motors field, Mr. Prince said, when application engineers pointed out and sold the advantages of electric drive over machines driven by steam engines and water wheels through belts and line shafting. Later, the development of highspeed steel made possible further advances—but not until some application engineer had visualized the whole combination of cutters, machine tools, and motors, and could get that idea across.

POWER OF IMAGINATION

"Market analysis will show how many horsepower in motors have gone into a given industry per year," the speaker declared. "The curve can be extended and projected into the future as a basis for forecasting future sales, if the same technical background is assumed to continue. But no market analysis can make an estimate of what will happen if some imaginative application engineer brings a new set of factors together.

MORE NEXT WEEK

Sponsored by the A.S.R.E., the First National Conference on Refrigeration Selling turned up a quota-busting quantity of imaginative thinking—both prepared and extemporaneous. Space requirements limit this report to the forepart of the sessions. It will be concluded in the next issue of the News.

"A household refrigerator must be quiet. In a hermetically sealed job, the motor and compressor are enclosed in a hermetically sealed shell. If the motor compressor is spring mounted, the shell is an excellent silencer. Sound passes with difficulty through the low pressure gas between the motor compressor and shell, and the spring mounting transmits very little sound.

"On the other hand, the same provisions which prevent the transmission of sound prevent the transmission of heat. Therefore, the motor tends to run hot, and will deteriorate rapidly unless special cooling means are provided. Motor and compressor both need oil. By running the oil over the motor, the motor can be cooled. By spraying the oil on the inside of the shell, the oil can be cooled so that the motor runs cool and is at the same time silent.

"By seeing the application as a whole, the application engineer has produced a quiet machine, and at the same time one which has better cooling than an open motor with negligible added complication."

"See it—solve it—sell it" was the three-step plan suggested by Luis Gibson of George H. Gibson Co., merchandising counsellors of New York City, in presenting the "selling side" of the story.

"The research and development engineer must be able to see through the eyes of the user, but with abnormal vision," Mr. Gibson said. "The user becomes satisfied with things as they are. Take the household refrigerator. I dare bet that 10 years from now it will be a different and improved product, but nine out of 10 users cannot suggest a single improvement.

"They will tell you that present-day refrigerators keep food cold, are attractive in appearance, and convenient to use—what more could be desired, they ask, unless it be a lower price. I pose as neither a research engineer nor a prophet; I cannot tell what improvements are coming, yet I repeat that they will come."

As indicative of what the future might hold in the way of refrigerator design, Mr. Gibson tossed out the following suggestions:

LUIS GIBSON'S IDEAS

That the refrigerator be designed and built as an integral part of the house; built to fit in with cabinets and other built-in fixtures. The refrigerator thus might be made wider to bring foods closer to the front, where they would be more easily reached. This, in turn, would necessitate a somewhat cumbersome door, if present type hinging were continued—so why not have vertical sliding doors, such as in present dairy refrigerators in food stores?

On the commercial refrigeration side, Mr. Gibson told how the present "endless display case," which is sectionalized and can be fitted together in lengths to suit almost any type of installation, was developed as the result of a suggestion by a salesman specializing in chain-store and super-market accounts, who visualized the need for such equipment among his users.

It is unlikely that a development engineer, working alone, would have come up with such equipment, Mr. Gibson said. "Engineers are apt to be so pressed with details, and so confined within the walls of the factory, that it is almost impossible for them to see through the eyes of the user," he explained.

Development of another type of commercial refrigerator—the open-type fruit and produce display case—also was the result of suggestion by salesmen, he said. One engineer to whom the idea was presented declared that it was folly to build an open stand, and that the trend was toward more complete enclosure and better insulation, rather than to open-type cases.

"He may have been right from an engineering standpoint," Mr. Gibson said, "but record-breaking sales prove that he was all wrong from a business standpoint."

To enable engineers to see through the eyes of the customer, the speaker suggested that they be given sales training and actual field experience.

LET ENGINEERS SELL

"It is common practice for young sales engineers to first serve a term at hard labor in the factory," he declared. "Why not reverse the procedure to give the embryo engineer a little training in the selling force, as a prerequisite to work in design and development? Why not give him a chance to become more intimately acquainted with the requirements and wishes of the customers?"

Turning next to the "solve it" side of the three-step plan, Mr. Gibson said that a definite, clear-cut purpose should guide all engineering development. The man who solves with a business mind, he declared, strikes a line through the "S" in the word "Solve," and thus turns it into a dollar sign.

On the "sell it" side, Mr. Gibson said, the customer will stop and listen only if the salesman talks about the customer's greatest interest—himself, and everything that pertains to himself—his work, his business, his health, his family, and last but not least, his money.

"Specifications alone mean nothing to Mr. Merchant," he asserted. "He is not interested in what the product is, but rather in what it does; not in the way in which it is made, but in the way it performs; not in how much it costs to make at the factory, but in how much it will earn in his store; not in how large the manufacturer is, but in how large his own store can grow; not in the salesman's pride in selling, but in his own pride of owning; not in how much or how little commission the salesman makes, but in how much he, the merchant, can make."

Proper selling helps, Mr. Gibson declared, help make the commercial refrigeration salesman business-minded—help him to present the matter of store improvements in terms of profits to the merchant, and how the changes can be made in the man's own store.

But this isn't all there is to the sale, he continued. After competition starts, and the bids of 10, 20 and even 30% lower prices begin to come in, the salesman gets down to steel, porcelain, and glass—but with proper selling tools, he transforms these physical objects into money before the eyes of the merchant.

Illustrating with typical examples of sales literature designed for one of his clients, Mr. Gibson explained how a "canned" sales talk is not needed to use the material, but how, at the same time, effective written matter is reproduced for the benefit of the salesman who is too lazy to paraphrase for himself. All these materials are slanted from the "profit" angle.

In closing, Mr. Gibson reiterated his three-step procedure:

1. See it, through the eyes of the user.
2. Solve it, with a dollar sign.
3. Sell it, in the customer's language.

★ ★ ★ ★ ★ ★ ★ ★ ★

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